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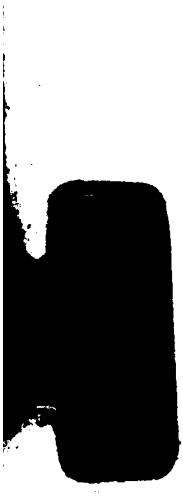

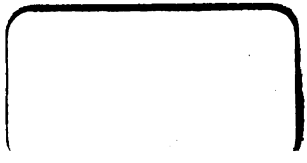

OBSTETRICAL TRANSACTIONS.

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VOL. XXI.

TRANSACTIONS

OF THE

OBSTETRICAL SOCIETY

OF

LONDON.

VOL. XXI.

FOR THE YEAR 1879.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

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BRITISH SUBJECTS.

Elected

1862 McCLINTOCK, ALFRED H., M.D., late Master of the Lying-in Hospital; 21, Merrion square, Dublin.

1862 DUNCAN, JAMES MATTHEWS, M.D., A.M., F.R.S. Ed., Physician-Accoucheur to and Lecturer on Midwifery and Diseases of Women and Children at St. Bartholomew's Hospital; 71, Brook street, Grosvenor square, W. *Council*, 1878-80.

1870 FARRE, ARTHUR, M.D., F.R.S. (HON. PRES.), Physician-Accoucheur to H.R.H. the Princess of Wales; 18, Albert Mansions, Victoria street, Westminster.

1871 KEILLER, ALEXANDER, M.D., F.R.S. Ed., Physician to the Royal Maternity Hospital, Lecturer on Midwifery and Diseases of Women and Children at Surgeons' Hall, Edinburgh; 21, Queen Street, Edinburgh.

1871 KIDD, GEORGE H., M.D., F.R.C.S.I., Obstetrical Surgeon to the Coombe Lying-in Hospital, and Examiner in Midwifery at the Queen's University and Royal College of Surgeons of Ireland; 30, Merrion square south, Dublin.

Elected

1870 WEST, CHARLES, M.D., F.R.C.P., Corresponding Member of the Academy of Medicine of Paris; 61, Wimpole street, Cavendish square. *Pres.* 1877-8.

FOREIGN SUBJECTS.

1872 BARKER, FORDYCE, M.D., Professor of Clinical Midwifery and Diseases of Women at the Bellevue Hospital Medical College, and Obstetric Physician to the Bellevue Hospital; Consulting Physician to the New York State Woman's Hospital, &c.; 85, Madison avenue, New York.

1863 BRAUN, CARL, M.D., Professor of Midwifery, Vienna.

1875 COURTY, AMEDÉE, M.D., Clinical Professor at the Faculty of Medicine of Montpellier.

1863 DEPAUL, JEAN ANNE HENRI, M.D., Professor of Clinical Midwifery, 53, Rue de Varennes, Paris.

1863 FAYE, F. C., M.D., Professor of Midwifery in the University of Christiania.

1864 HECKER, C., Von, M.D., Munich.

1866 HUGENBERGER, THEODOR, M.D., à la Maternite et aux Enfants Trouvés Hôpital des Accouchements, Moscow.

1866 LAZAREWITCH, J., M.D., Kharkoff, Russia.

1864 PAJOT, CH. M.D., Professor of Midwifery to the Faculty of Medicine, Paris.

1866 RIZZOLI, FRANCESCO, M.D., Bologna.

1862 SCANZONI, F. W. VON, M.D., Professor of Midwifery, Würzburg.

1864 SIMS, J. MARION, M.D., late Surgeon to the Women's Hospital; 267, Madison avenue, New York.

1872 SPIEGELBERG, OTTO, M.D., Professor of Clinical Midwifery, and Director of the Gynæcological Clinique in Breslau.

1877 STOLTZ, Professor, M.D., Nancy.

1866 THOMAS, ABRAHAM EVERARD SIMON, M.D., Leyden.

Elected

1872 THOMAS, T. GAILLARD, M.D., Professor of Obstetrics in the College of Physicians and Surgeons; 296, Fifth avenue, New York.

1862 VIRCHOW, RUDOLF, M.D., Professor of Pathological Anatomy in the University of Berlin.

CORRESPONDING FELLOWS.

1873 MARTIN, A. E., M.D., Berlin.

1876 BUDIN, P., M.D., Paris.

1876 CHADWICK, JAMES R., M.A., M.D., Physician for Diseases of Women, Boston City Hospital; Clarendon street, Boston, Massachusetts, U.S.

1877 GOODELL, WILLIAM, A.M., M.D., Professor of Clinical Gynæcology in the University of Pennsylvania; Philadelphia, Pennsylvania.

1876 LUSK, WILLIAM J., M.D., Professor of Obstetrics, Bellevue Hospital Medical College; New York.

1876 PREVÔT, OSCAR, M.D., Moscow.

1877 STORER, HORATIO, M.D., Boston, Mass.

ORDINARY FELLOWS.

JANUARY, 1880.

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The letters O.F. are prefixed to the names of the "Original Fellows" of the Society.

Elected

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1869 ADAMS, THOMAS RUTHERFORD, M.D., Surgeon to the Croydon General Hospital; Stamford House, St. James's road, West Croydon, S.

1879 ADDIS, PHILIP, L.R.C.P. Ed., Iver, Bucks.

1859 ALDERSEY, William Hugh, M.B. Lond., F.R.C.S., Laurels, West street, Bromley, Kent.

1871 ALDERSON, FREDERICK H., Southerton House, Glenthorne road, Hammersmith, W.

1878 ALDRED, HENRY ALLEN, M.D., 4, Westbourne park, W.

1878 ALFORD, FREDERICK STEPHEN, 61, Haverstock hill, N.W.

1873 ALLEN, HENRY MARCUS, M.R.C.P. Ed., 38, Regency square, Brighton.

1859 AMSDEN, GEORGE JOHN, M.D., Wynters, Widford, near Ware, Herts.

1878 ANDERSON, IZETT WILLIAM, M.D., 92, Hanover street, Kingston, Jamaica. *Hon. Loc. Sec.*

1875 ANDERSON, JOHN FORD, M.D., C.M., 28, Buckland crescent, Belsize park, N.W.

1866 ANDREWS, HENRY CHARLES, M.D., 1, Oakley square, N.W.

1859 ANDREWS, JAMES, M.D., 149, Camden road, N.W.

1870 APPLETON, ROBERT CARLISLE, Toll Garel, Beverley.

1859 ARCHER, JOHN, F.R.C.S., 9, Carpenter road, Edgbaston, Birmingham.

Elected

1871 ARGLES, FRANK, L.R.C.P. Ed., Hermon Lodge, Wanstead, Essex, N.E.

1861 ARMSTRONG, JOHN, M.D., Green street green, Dartford, Kent.

O.F. AVELING, JAMES H., M.D., Physician to the Chelsea Hospital for Women; 1, Upper Wimpole Street, W. *Council*, 1865-66, 1872. *Hon. Sec.* 1873. *Hon. Lib.* 1874-6. *Vice-Pres.* 1877-8.

1872 AYLING, ARTHUR H. W., 103, Great Portland street, W.

1859 AYLING, WILLIAM HENRY, L.R.C.P. Ed., 103, Great Portland street, W.

1873 BAILEY, JAMES JOHNSON, M.D., L.R.C.P. Ed., Hill Crest, Marple, Cheshire.

1875 BAILEY, THOMAS, Godstone, Surrey.

1877 BAKER, ALBERT DE WINTER, 2, Lawn terrace, Dawlish, Devon.

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1859 BAKER, JOHN WRIGHT, Surgeon to the Derbyshire General Infirmary; 102, Friar gate, Derby. *Council*, 1879-80. *Hon. Local Sec.*

O.F. BANNISTER, JOHN HENRY, 436, Oxford street, W.

1869 BANTOCK, GEORGE GRANVILLE, M.D., Surgeon to the Samaritan Free Hospital; 12, Granville place, Portman square, W. *Council*, 1874-6.

1874 BARBER, EDWARD, 259, Glossop road, Sheffield.

1874 BARCLAY, JOHN, M.D., 10, Low street, Banff.

O.F. BARNES, ROBERT, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital; 15, Harley street, Cavendish square, W. *Vice-Pres.* 1859-60. *Council*, 1861-62, 1867. *Treas.* 1863-64. *Pres.* 1865-66. *Trustee.*

1875 BARNES, R. S. FANCOURT, M.D., Physician to the British and General Lying-in Hospital; Assistant Physician to the Royal Maternity Charity; Obstetric Physician to the St. George's and St. James's Dispensary; 39, Weymouth street, Portland place, W. *Council*, 1879-80.

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1861* BARTRUM, JOHN S., F.R.C.S., Surgeon to the Bath General Hospital; 13, Gay street, Bath. *Hon. Loc. Sec. Council*, 1877-9.

1866 BASSETT, JOHN, M.D., Professor of Midwifery at the Queen's College, Birmingham; 144, Hockley Hill, Birmingham. *Council*, 1874-6. *Vice.-Pres.* 1880.

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1859 BATEMAN, HENRY, F.R.C.S., 13, Canonbury lane, Islington, N.

1867 BATTEN, RAYNER W., M.D., Physician to the Gloucester General Infirmary; 1, Brunswick square, Gloucester. *Hon. Loc. Sec.*

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1872 BLAND, GEORGE, Surgeon to the Macclesfield Infirmary; Park Green, Macclesfield.

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1868 BOGGS, ALEXANDER, M.D., late of H.M.'s Madras Army, 362, Rue St. Honoré, Paris.

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1869 BOYD, HERBERT, Assistant-Surgeon, Indian Army, Fort William, Calcutta [agents, Henry S. King and Co., 45, Pall Mall].

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1873 BRAITHWAITE, JAMES, M.D., Lecturer on Midwifery and Diseases of Women and Children at the Leeds School of Medicine; Assistant Surgeon to the Leeds Hospital for Women and Children; Little Woodhouse, 16, Clarendon road, Leeds. *Vice-Pres.* 1877-9. *Hon. Loc. Sec.*

1862 BRAITHWAITE, WILLIAM, M.D., late Lecturer on Midwifery, Leeds School of Medicine; Clarendon House, 20, Clarendon road, Leeds. *Council*, 1869-70.

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1878 BUNCOMBE, J. DOBREE, Prêtre Meintyes Fontein, Beaufort West, Extension Railway, Cape Colony.

1861 BUNNY, JOSEPH, M.D., Hon. Surgeon to the Newbury Dispensary; Northbrook street, Newbury, Berks.

1877 BURCHELL, PETER LODOWICK, M.B., Surgeon-Accoucheur to the City of London Lying-in Hospital; 2, Kingsland road, E.

1877 BURD, EDWARD, M.D., M.C., Senior Physician to the Salop Infirmary; Newport House, Shrewsbury.

1878 BURN, STACEY SOUTHERDON, St. Bartholomew's Hospital.

1867 BURNETT, CHARLES, M.B., Biggleswade, Bedfordshire.

1862 BURTON, JOHN MOULDEN, F.R.C.S., Lee park lodge, Lee, Kent, S.E. *Council*, 1868-69.

1878 BURTON, WILLIAM, L.R.C.P. Ed., 79, New North road, Hoxton, N.

1864 BUTLER, FREDERICK JOHN, M.D., Surgeon to Winchester College and St. Cross Hospital, and to the Hants County Hospital, Winchester. *Hon. Loc. Sec.*

1868 BUTT, WILLIAM FREDERICK, L.R.C.P. Lond., 25 Park street, Park lane, W. *Council*, 1876-78.

1879 CAMPBELL, CHARLES JAMES, M.D., 24, Rue Royale, St. Honoré, Paris.

1861 CANDLISH, HENRY, M.D., Physician to the Alnwick Infirmary; 26, Fenkle street, Alnwick, Northumberland.

1861 CANDY, JOHN, M.D., Surgeon-Major, Army Medical Department; Ramandroo, near Bellady, India. [*Per* Messrs. Wm. Walton & Co., Anglo-Indian Agency, 113, Fenchurch street, E.C.]

Elected

1872 CARLESS, EDWARD NICHOLLS, M.B., C.M., Lansdowne grove, Devizes, Wilts.

1863 CARLYLE, DAVID, M.D., 2, The Crescent, Carlisle.

1861 CARTER, ALBERT PLEYDELL, Wellington House, London road, Gloucester.

1872 CARTER, CHARLES HENRY, M.D., Physician to the Hospital for Women; 45, Great Cumberland place, Hyde Park, W. *Council*, 1880.

1877 CARVER, EUSTACE JOHN, Fairlawn, Fulham.

1869 CASKIE, JOHN BOYD, M.D., 89, Goswell road, E.C.

1878 CASKIE, WILLIAM ALEX., M.A., M.B., Manse Court, 17, Main street, Largs, Ayrshire, N. B.

1870 CAUSTON, WILLIAM HENRY, 1, Pomona place, Hammersmith.

1863 CAYZER, THOMAS, Mayfield, Aigburth, Liverpool.

1875 CHAFFERS, EDWARD, F.R.C.S., 54, North street, Keighley, Yorkshire.

1873 CHALMERS, JOHN, M.D., 43, Caledonian road, N.

1864 CHAMBERS, THOMAS, F.R.C.P. Ed., F.R.C.S. Ed., Senior Physician to the Chelsea Hospital for Women, Consulting Physician Accoucheur to the Western Maternity; 64, Chester square, S.W. *Council*, 1874-6.

1876 CHAMPNEYS, FRANCIS HENRY, M.A., M.B. Oxon., 11, Wyndham place, Bryanston square, W. *Council*, 1880.

1859 CHANCE, EDWARD JOHN, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 59, Old Broad street, City, E.C.

1867* CHARLES, T. EDMONDSTOUNE, M.D., Professor of Midwifery at the Calcutta Medical College, 10, Harrington street, Calcutta. *Hon. Loc. Sec.*

1874 CHARLESWORTH, JAMES, 25, Birch terrace, Hanley, Staffordshire.

1868 CHILD, EDWIN, New Malden, Kingston-on-Thames, Surrey.

Elected

1863* CHISHOLM, EDWIN, M.D., Abergeldie, Ashfield, near Sydney, New South Wales. [Per Messrs. Turner and Henderson, care of Messrs. W. Dawson, 121, Cannon street, E.C.].

1879 CHURCHILL, ALEX. FERRIER, M.B., Surgeon-Major, V Lines, South Camp, Aldershot.

1859 CLAREMONT, CLAUDE CLARKE, Millbrook House, 1, Hampstead road, N.W.

1859 CLARK, JAMES FENN, Clent house, Beauchamp square, Leamington. *Hon. Loc. Sec.*

1874 CLARK, JAMES HENRY, L.R.C.P. Ed., Goschen Post-office, St. Elizabeth, Jamaica. [Per J.W. Goodinge, F.R.C.S., 18, Aldersgate street, E.C.]

1879 CLARKE, REGINALD, South Lodge, Lee park, Lee, S.E.

1872 CLARKE, WILLIAM MICHELL, late Surgeon to the British General Hospital; 2, York buildings, Clifton, Bristol.

O.F. CLAY, CHARLES, M.D., late Lecturer on Midwifery and Clinical Medicine in St. Mary's Hospital, Manchester; Audenshaw Lodge, Audenshaw; and 101, Piccadilly, Manchester. *Council*, 1863-65.

1876 CLAY, GEORGE LANGSFORD, West View, 443, Moseley road, Birmingham.

O.F. CLAY, JOHN, Professor of Midwifery, Queen's College, Birmingham; Allan House, 138-9, Steelhouse lane, Birmingham. *Council*, 1868-69. *Vice-Pres.* 1872-4.

O.F. CLEVELAND, WILLIAM FREDERICK, M.D., Stuart villa, 199, Maida vale, W. *Council*, 1863-64. *Vice-Pres.* 1875-77.

1861 CLOGG, STEPHEN, East Looe, Cornwall.

1865* COATES, CHARLES, M.D., Physician to the Bath General and Royal United Hospitals; 10, Circus, Bath.

1860 COCKELL, EDGAR, Holly lodge, 62, Forest road, Dalston, N.E.

1859 COCKELL, FREDERICK EDGAR, 144, Amherst road, Hackney, N.E.

Elected

1878 COCKELL, FREDERICK EDGAR, Jun., 62, Forest road, Dalston.

1875 COFFIN, RICHARD JAS. MAITLAND, M.R.C.P. Ed., 4, Wetherby terrace, Earl's court road, South Kensington, S.W.

1878 COFFIN, THOMAS WALKER, 81, Queen's crescent, Haverstock hill, N.W.

1875 COLE, RICHARD BEVERLY, M.D. Jefferson Coll. Philad., San Francisco, California, U.S. [*Per* Mr. Henry Perkins, 14, Ampthill square, Regent's park.]

1876 COLEMAN, MATTHEW OWEN, M.D., 5, Victoria terrace, Surbiton, Surrey.

1877 COLMAN, WALTER TAWELL, Hon. Surgeon to the Brighton Hospital for Women; 87, Buckingham road, Brighton.

1866 COOMBS, JAMES, M.D., Bedford.

1873 COOPER, FRANK W., Leytonstone, Essex.

1874 COOPER, HERBERT, L.R.C.P. Ed., 3, Rosslyn terrace, Hampstead, N.W.

1861 COOPER, JOHN, M.R.C.P. Ed., Clapham rise, S.W.

1872 COOTE, MICHAEL, M.D., 15, Ivanhoe terrace, Ashby-de-la-Zouch.

1865 COPEMAN, EDWARD, M.D., Physician to the Norfolk and Norwich Hospital; Upper King street, The Close, Norwich. *Council*, 1869-71. *Vice-Pres.*, 1873-5. *Hon. Loc. Sec.*

1875 CORDES, AUG., M.D., Professor of Obstetrics at the University of Geneva; 8, Corraterie, Geneva.

1866 CORNWALL, JAMES, F.R.C.S., Fairford, Gloucestershire.

1860 CORRY, THOMAS CHARLES STEUART, M.D., Senior Surgeon to the Belfast General Dispensary; 146, Donegall Pass, Belfast. *Council*, 1867. *Hon. Loc. Sec.*

1859 CORY, FREDERICK CHARLES, M.D., Portland villa, Buckhurst hill, Essex. *Council*, 1867-69.

1875 CORY, ROBERT, M.D., Assistant Obstetric Physician to St. Thomas's Hospital; 14, Palace road, Albert Embankment, S.E. *Council*, 1879-80.

Elected

1879 COWAN, GEORGE HUGHES, M.B., Nepanee, Ontario, Canada.

1869 COX, RICHARD, L.R.C.P. Ed., Theale, near Reading.

1877 CRAWFORD, JAMES, L.K.Q.C.P.I., Ightham, Sevenoaks.

1876 CREW, JOHN, Higham Ferrers, Northamptonshire.

1859 CROFT, J. MCGREGOR A. T., M.D., M.R.C.P., 15, Abbey road, St. John's Wood, N.W.

1866 CROFT, ROBERT CHARLES, L.R.C.P. Ed., 204, Camden road, N.W.

1874 CROMBIE, CHARLES MANN, M.B. & C.M., 9, Union terrace, Aberdeen.

1860 CROSS, RICHARD, M.D., Carlton House, Belmont road, Scarborough, Yorkshire. *Hon. Loc. Sec. Council*, 1880.

1869 CROSS, ROBERT SHACKLEFORD, Petersfield, Hants.

1867 CROUCHER, HENRY, West Hill, Dartford, Kent.

1876 CROUDACE, J. H., Assistant Medical Officer, East Riding Asylum, Beverley, Yorkshire.

1879 CROWDEN, JAMES TRIGUE, M.D., Gedney Hill, Wisbeach, Lincolnshire.

1875* CULLINGWORTH, CHARLES JAMES, Surgeon to St. Mary's Hospital, Manchester; 260, Oxford road, Manchester.

1859 CULPEPER, WILLIAM MOE, 1, Brunswick terrace, Palace gardens, Kensington, W.

1862 CUMBERBATCH, LAWRENCE TRENT, M.D., 25, Cadogan place, Belgrave square, S.W. *Council*, 1868-70. *Vice-Pres.*, 1878.

1867 CUOLAHAN, HUGH, M.D., 9, Grange road, Bermondsey, S.E.

1859 CURGENVEN, J. BRENDON, 11, Craven hill gardens, Bayswater, W. *Council*, 1870-72.

1868 DALY, FREDERICK HENRY, M.D., 101, Queen's road, Dalston, N.E. *Council*, 1877-9.

1876 DAVIES, GOMER, L.R.C.P. Ed., 66, Pembridge villas, Bayswater, W.

1878 DAVIES, HENRY NAUNTON, Glyn Rhondda House, Cymer, Pontypridd, Glamorganshire.

Elected

O.F. DAVIS, JOHN HALL, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women and Children at, the Middlesex Hospital; Physician to the Royal Maternity Charity; Consulting Physician-Accoucheur to the St. Pancras Infirmary; 24, Harley street, Cavendish square, W. *Council*, 1859, 1864-65. *Vice-Pres.* 1861-63. *Pres.* 1867-68.

1863 DAVIS, ROBERT ALEX., M.D., Resident Physician, County Asylum, Burntwood, near Lichfield, Stafford.

1873 DAVISON, FRANCIS, L.R.C.P. Ed., Elton, Bury, Lancashire.

1877 DAVSON, SMITH HOUSTON, M.D., Camden villa, 203, Maida vale, W.

1878 DAY, EDMUND OVERMAN, House Surgeon to the Royal Infirmary for Children and Women, Waterloo Bridge road.

1859 DAY, WILLIAM HENRY, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester square, W. *Council*, 1873-75.

1877 DEAN, MARSHALL M. P., M.D., Peterboro', Toronto, Ontario, Canada.

1872 DENTON, GEORGE BAGSTER, Surgeon to the Ladies' Charity and Lying-in Hospital; 2, Abercromby square, Liverpool.

1877 DEWAR, JOHN, L.R.C.P. Ed., 132, Sloane street, S.W.

1860 DICKENSON, JOHN, F.R.C.S., Hon. Surgeon to the Wrexham Infirmary; Wrexham, Denbighshire.

1879 DOLAN, THOMAS MICHAEL, L.R.C.P. Ed., 32, North parade, Halifax.

1877 DONOVAN, JOHN ISLAND, M.D., Ballincollig, Co. Cork.

1879 DORAN, ALBAN H. G., F.R.C.S., 50, Seymour street, Portman square, W.

O.F. DRAGE, CHARLES, M.D., Hatfield, Herts. *Council*, 1861-4.

1878 DRING, WILLIAM ERNEST, L.R.C.P. Ed., Boughton-under-Blean, Faversham, Kent.

1876 DUKE, GEORGE AMOS, 9, Cornwall road, Westbourne road, W.

O.F. DUNCAN, JAMES, M.B., 8, Henrietta street, Covent garden, W.C. *Council*, 1873-74.

Elected

1859 DUNCAN, PETER CHARLES, M.D.

1871 EASTES, GEORGE, M.B., F.R.C.S., Surgeon-Accoucheur to the Western General Dispensary; 69, Connaught street, Hyde park square, W. *Council*, 1878-80.

1866 EASTON, JOHN, M.D., 19, Norfolk Crescent, Hyde park, W. *Council*, 1878.

1878 EATON, JOHN CHAMBERLIN, Ancaster, Lincolnshire.

1877 EDDOWES, WILLIAM, Surgeon to the Salop Infirmary, 3, The College, Shrewsbury.

1867 EDIS, ARTHUR W., M.D., Assistant-Physician-Accoucheur to the Middlesex Hospital; Physician to the British Lying-in Hospital; 22, Wimpole street, W. *Council*, 1873-74. *Hon. Sec.* 1874-77. *Vice-Pres.* 1878-80.

1879 ELDER, GEORGE, M.B., C.M., Surgeon to the Hospital for Women, Nottingham; 17, Regent street, Nottingham.

1879 ELKINGTON, ARTHUR GUY, Surgeon-Major, Grenadier Guards, 52, Gillingham street, Eccleston square, S.W.

1878 ELLERY, RICHARD, L.R.C.P. Ed., Plympton, Devon.

1862 ELLISON, JAMES, M.D., Surgeon to H.M.'s Household, Windsor; 14, High street, Windsor, Berks. *Council*, 1873-75.

1873 ENGELMANN, GEORGE JULIUS, A.M., M.D., 3003, Locust street, St. Louis, Missouri, U.S.

1871 EVANS, THOMAS WALTER, 101, Heyworth street, Everton, Liverpool.

1879 EVERSHED, CHARLES L., Arundel, Sussex.

1875 EWART, JOHN HENRY, Surgeon to St. Mary's Hospital for Women and Children; Limefield House, Cheetham hill, Manchester.

1875 EYELEY, JOSEPH FREDERICK, L.R.C.P. Lond., 5, Hill-park crescent, Plymouth.

1865 FAIRBANK, THOMAS, M.D., Surgeon to H.M. the Queen and the Royal Household, Windsor Castle; Moulsey House, Sheet street, Windsor, Berks.

1876 FARNCOMBE, RICHARD, 40, Belgrave street, Balsall heath, Birmingham.

Elected

1869 FARQUHAR, WILLIAM, M.D., Surgeon-Major, Madras Army, Bangalore, Madras Presidency. [24, Pembroke gardens, Kensington.]

1861 FARR, GEO. F., L.R.C.P. Ed., Slade House, 175, Kennington road, S.E.

1879 FAYRER, SIR JOSEPH, M.D., K.C.S.I., 16, Granville place, Portman square.

1868 FEGAN, RICHARD, M.D., 1, Charlton park terrace, Old Charlton, Kent.

1872 FERGUSSON, ALEXANDER, M.D., F.R.C.S. Ed., Tweedbrae House, Peebles, N.B.

1861 FETHERSTON, GERALD H., M.D.; Hon. Physician to the Melbourne Lying-in Hospital, Prahran, Melbourne, Victoria. *Hon. Loc. Sec.*

1873 FINEGAN, JAMES HERBERT, M.D., 48, Rodney street, Liverpool.

1870 FISHER, JOHN MOORE, M.D., 2, Balmoral terrace, Anlaby road, Hull.

1874 FITZRAYNE, WILLIAM ALLEN, 10, Freeschool street, Horselydown, S.E.

1868 FLETCHER, EDWARD, Lygon street, Carlton, Melbourne, Victoria.

1878 FLINT, ARTHUR, Westgate-on-Sea, Margate, Kent.

1877* FONMARTIN, HENRY DE, M.D., The Grove, Portland, Dorset.

1876 FORBES, LITTON.

1877* FORD, JAMES, M.D., Eltham, Kent.

1865 FOWLER, JAMES, F.S.A., Hon. Surgeon to the Clayton Hospital and Wakefield General Dispensary; 13, South Parade, Wakefield. *Council*, 1872-4. *Hon. Loc. Sec.*

1866 FOX, CORNELIUS BENJAMIN, M.D., late Medical Officer of Health, Maldon Union Sanitary District, Chelmsford, Essex.

1877 FOXON, FOXON, 231, Brompton road, S.W.

1862 FRAIN, JOSEPH, M.D., Hon. Surgeon to the South Shields Dispensary; Frederick street, South Shields.

1875 FRASER, ANGUS, M.D., 232, Union street, Aberdeen.

1867 FREEMAN, HENRY W., 24, Circus, Bath.

Elected

1867 FULLER, CHARLES C., 33, Albany street, Regent's park, N.W.

1874* GALABIN, ALFRED LEWIS, M.A., M.D., Assistant Obstetric Physician to, and Joint Lecturer on Midwifery at, Guy's Hospital; 14, St. Thomas's street, Southwark, S.E. *Council*, 1876-78. *Hon. Lib.* 1879. *Hon. Sec.* 1880.

1863 GALTON, JOHN H., M.D., Woodside road, Upper Norwood, S.E. *Council*, 1874-6.

1879 GARDNER, JOHN TWINAME, Northfield House, Ilfracombe.

1872 GARDNER, W., M.A., M.D., 525, St. Joseph street, Montreal, Canada.

1863 GARMAN, HENRY VINCENT, Kent House, 6, Bow road, E.

1876 GARNER, JOHN, 52, New Hall street, Birmingham.

1879 GARSTANG, THOMAS W. HARROPP, Oakleigh, Dobcross, near Manchester.

1873 GARTON, WILLIAM, M.B., F.R.C.S., Hardshaw street, St. Helen's, Lancashire.

1859 GASKOIN, GEORGE, 7, Westbourne park, W. *Council*, 1870-72.

1875 GAWITH, J. JACKSON, 23, Westbourne park terrace, W.

1869 GEIKIE, WALTER B., M.D., F.R.C.S. Ed., Professor of the Principles and Practice of Medicine and of Clinical Medicine in the University of Trinity College, Toronto, Ontario, Canada.

1877 GELL, THOMAS SILVESTER, M.D., St. John's Lodge, Kensal green, W.

1859 GERVIS, HENRY, M.D., F.R.C.P., Obstetric Physician to, and Lecturer upon Obstetric Medicine at, St. Thomas's Hospital; Examiner in Obstetric Medicine at the University of London; 40, Harley street, Cavendish square. *Council*, 1864-66. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3. *Treas.* 1878-80.

1866 GERVIS, FREDERICK HEUDEBOURCK, 1, Fellows road, Haverstock hill, N.W. *Council*, 1877-9.

1875 GIBBINGS, ALFRED THOMAS, M.D., 93, Richmond road, Dalston, N.E.

1874 GIBSON, JAMES EDWARD, Hillside, West Cowes, Isle of Wight.

1866 GIDDINGS, WILLIAM KITTO, L.R.C.P. Ed., Shaftesbury House, Calverley, near Leeds, Yorkshire.

Elected

1877 GIFFARD, DOUGLAS WILLIAM, 44, Old Steyne, Brighton.

1875 GILES, PETER BROOME, L.R.C.P. Ed., Staunton-on-Wye, Hereford.

1869 GILL, WILLIAM, L.R.C.P. Lond., 11, Russell square, W.C.

1867 GITTINS, JOHN, L.R.C.P. Ed., St. Olave's Union, Parish street, Southwark, 134, Tooley street, S.E.

1871 GODDARD, EUGENE, L.R.C.P. Lond., North Lynne, Highbury New Park, N.

1876 GODFRAY, ALFRED CHARLES, M.B., L.R.C.P. Ed., 45, La Motte street, Jersey.

1877 GODSON, CHARLES, F.R.C.S., 1, Astwood road, Cromwell road, South Kensington, S.W.

1871 GODSON, CLEMENT, M.D., C.M., Assistant Physician-Accoucheur to St. Bartholomew's Hospital; 8, Upper Brook street, Grosvenor square, W. *Council*, 1876-77. *Hon. Sec.* 1878-80.

1868 GODWIN, ASHTON, M.D., 28, Brompton crescent, Brompton, S.W.

1873 GOLDSMITH, JOHN, M.D., Highworth House, Worthing, Sussex.

1873 GOODCHILD, NATHANIEL, L.R.C.P. Ed., 9, Highgate road, N.W.

1869 GOSS, TREGENNA BIDDULPH, 36, The Paragon, Bath.

1875 GRAY, JAMES, M.D., 15, Newton terrace, Glasgow.

1874 GREENE, WILLIAM THOMAS, M.D., T.C.D., Moira House, Peckham rye, S.E. *Council*, 1880.

1863 GRIFFITH, G. DE GORREQUER, Physician to the Hospital for Women and Children, Pimlico; Physician-Accoucheur to St. Saviour's Maternity; 9, Lupus street, St. George's square, S.W.

1869 GRIFFITH, JOHN T., M.D., Talfourd House, Camberwell.

1879 GRIFFITH, WALTER SPENCER ANDERSON, St. Bartholomew's Hospital.

1870 GRIGG, WILLIAM CHAPMAN, M.D., Physician to the Inpatients, Queen Charlotte's Lying-in Hospital; Assistant Obstetric Physician to the Westminster Hospital; Assistant-Physician to the Victoria Hospital for Children; 6, Curzon street, Mayfair. *Council*, 1875-77.

Elected

O.F. GRIMSDALE, THOS. F., L.R.C.P. Ed., Consulting Surgeon to the Lying-in Hospital, and late Lecturer on Diseases of Children, &c., at the Royal Infirmary School of Medicine; 29, Rodney street, Liverpool. *Council*, 1861-62. *Vice-Pres.* 1875-76.

1877 GROSHOLZ, FREDERICK HERMANN VARLEY, L.K.Q.C.P.I., Pier House, Aberdovey, Merionethshire, North Wales.

1876 GROTH, ERNST R. G., M.D., 5, Weymouth street, Portland place, W.

1879 GROVE, WILLIAM RICHARD, M.D., St. Ives, Huntingdonshire.

1865 GWYN, GEORGE F., Westcroft House, Hammersmith, W.

1876 HABGOOD, HENRY, M.D., Sussex House, Bolton road, Eastbourne, Sussex.

1867 HADAWAY, JAMES, L.R.C.P. Ed., 47B, Welbeck street, Cavendish square, W.

1876 HADDEN, JOHN, M.D., 31, West street, Horncastle, Lincolnshire.

O.F. HALL, ALFRED, M.D., Senior Physician to the Brighton Dispensary; Furze Hill House, Furze hill, Brighton. *Council*, 1864-65. *Vice-Pres.* 1866-68. *Hon. Loc. Sec.*

1859 HALL, FREDERICK, 1, Jermyn street, St. James's, S.W.

1867 HALL, JOHN HENRY WYNNE, L.R.C.P. Ed., 33, Albert terrace, Albert square, Clapham road, S.W.

1871 HALLOWES, FREDERICK B., Redhill, Reigate, Surrey.

1876 HAMMOND, CHARLES, 33, Baker street, Portman square, W.

1874 HANNAN, FRANCIS JOHN, M.B., Avonside, Downton, Wilts.

1860 HARDEY, KEY, Surgeon to the West City Dispensary; 4, Wardrobe place, Doctors' Commons, E.C.

1872 HARDING, WILLIAM, F.R.C.S., 4, Percy street, Bedford square, W.C.

1877 HARDWICKE, WILLIAM WRIGHT, L.R.C.P. Ed., 1, Westgate, Rotherham.

1877 HARPER, GERALD S., St. George's Hospital, Hyde park corner, S.W. [care of F. J. Marshall, Esq.].

Elected

O.F. HARPER, PHILIP H., F.R.C.S., 30, Cambridge street, Hyde park, W.

1878 HARRIES, THOMAS DAVIES, 36, North Parade, Aberystwith, Cardiganshire.

O.F. HARRINSON, ISAAC, F.R.C.S., Castle street, Reading, Berks. *Council*, 1862-65. *Hon. Loc. Sec.*

1862 HARRIS, CHARLES, M.D., Northiam, Ashford, Kent.

1871 HARRIS, CHARLES JAMES, 11, Kilburn Priory, N.W.

1872 HARRIS, HENRY, M.D., F.R.C.S., Trengweath place, Redruth, Cornwall.

1867 HARRIS, WILLIAM H., M.D., Professor of Midwifery in the Madras Medical College, and Superintendent of the Lying-in Hospital, Madras [agent: Mr. H. K. Lewis, Gower street].

1861 HARRIS, WILLIAM JOHN, 13, Marine Parade, Worthing. *Hon. Loc. Sec.*

1879 HARVEY, GEORGE, L.R.C.P. Ed., Wirksworth, Derbyshire.

1865 HARVEY, ROBERT, M.D., Civil Surgeon of Bhurtpore, near Agra, India [*vid* Bombay]. [Per Messrs. Cochran and Anderson, 152, Union street, Aberdeen.]

1873 HATHERLY, HENRY REGINALD, L.R.C.P. Ed., Wellington street, Park side, Nottingham.

1865 HAYES, HAWKESLEY ROCHE, Basingstoke, Hants.

1873 HAYES, THOMAS CRAWFORD, M.D., Assistant Obstetric Physician to King's College Hospital; 17, Clarges street, Piccadilly, W. *Council*, 1876-78.

1867 HEMBROUGH, JOHN WILLIAM, Ivy cottage, Waltham, Grimsby.

1870 HENDERSON, ALEXANDER, 2, Meadow Bank place, Rose vale, Partick, Glasgow.

1878 HENRY, LOUIS, M.D., Melbourne, Victoria, Australia [per J. Kilpatrick, Esq., 2, Northampton Square, Clerkenwell, E.C.].

1876 HERMAN, GEORGE ERNEST, M.B., Assistant Obstetric Physician to the London Hospital, 20, Finsbury square, E.C. *Council*, 1878-79. *Hon. Lib.* 1880.

Elected

O.F. HEWITT, GRAILY, M.D., F.R.C.P., Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 36, Berkeley square, W. *Hon. Sec.* 1859-64. *Treas.* 1865-66. *Vice-Pres.* 1867-68. *Pres.* 1869-70.

1862 HEWITT, TOM SMITH, M.D., Ivy Cottage, Winkfield, Windsor, Berks.

1867 HICKINBOTHAM, JAMES, M.D., L.R.C.P. Ed., Physician to the Birmingham and Midland Hospital for Women; 26, Broad street, Birmingham.

1876 HICKS, EDWARD JOHN W., M.B., C.M., Port Elliot, South Australia.

1860 HICKS, JOHN BRAXTON, M.D., F.R.C.P., F.R.S., Physician-Accoucheur to, and Lecturer on Midwifery and the Diseases of Women and Children at, Guy's Hospital; 24, George street, Hanover square. *Council*, 1861-2, 1869. *Hon. Sec.* 1863-65. *Vice-Pres.* 1866-68. *Treas.* 1870. *Pres.* 1871-2.

1860 HIGGS, THOMAS FREDERIC, L.R.C.P. Ed., 194, High street, Dudley, Worcestershire.

1879 HILL, T. WOOD, L.R.C.P. Ed., 96, Earl's court road, Kensington, S.W.

1872 HILLIARD, ROBERT HARVEY, M.D., Fairmead House, 5, Belgrave terrace, Upper Holloway road, N.

1868 HIME, THOMAS WHITESIDE, M.B., 217, Glossop road, Sheffield.

1878 HINTON, JAMES THOMAS, Croydon, Surrey.

1876 HOAR, WILLIAM, Maidstone, Kent.

O.F. HODGES, RICHARD, M.D., F.R.C.S., 16, Orchard street, Portman square, W.

1864 HOFFMEISTER, WILLIAM CARTER, M.D., Surgeon to the Queen in the Isle of Wight; Clifton House, Cowes, Isle of Wight. *Council*, 1877-9.

1876 HOLDEN, J. SINCLAIR, M.D., Sudbury, Suffolk.

1876 HOLLAND, NEVILLE, Hadwen House, Victoria road, Kilburn, N.W.

Elected

1875 HOLLINGS, EDWIN, L.R.C.P. Ed., 4, Gordon street, Gordon square, W.C.

1859 HOLMAN, CONSTANTINE, M.D., Barons, Reigate, Surrey. *Council*, 1867-69. *Vice-Pres.* 1870-71.

1860 HOLMAN, HENRY MARTIN, M.D., Hurstpierpoint, Sussex.

1864 HOOD, WHARTON PETER, M.D., 65, Upper Berkeley street, Portman square, W.

1872 HOPE, WILLIAM, M.D., Physician to Queen Charlotte's Lying-in Hospital; 56, Curzon street, Mayfair, W. *Council*, 1877-9.

1874 HOPKINS, ALFRED BOYD, 180, Shoreditch, E.

1876 HORSMAN, GODFREY CHARLES, 22, King street, Portman square, W.

1864 HOUGHTON, HENRY GEORGE, L.K.Q.C.P. Ireland; 6, Mount street, Grosvenor square, W.

1877 HOWELL, HORACE SYDNEY, M.D, 11, Boundary road, St. John's Wood, N.W.

1879 HOWIE, JAMES MUIR, M.D. Edin., 50, Rodney street, Liverpool.

1879 HUBBARD, THOMAS WELLS, Lenham, near Maidstone, Kent.

1876 HUE, JUDE, M.D., 15, Rue Jeanne d'Arc, Rouen, France.

1878 HUSBAND, WALTER EDWARD, Royal United Hospital, Bath.

1859 HUTCHINSON, JONATHAN, F.R.C.S., Surgeon to the London Hospital; 15, Cavendish square, W. *Council*, 1869-71.

1861 HUTTON, CHARLES, M.D., Physician to the General Lying-in Hospital; 26, Lowndes street, Belgrave square, S.W.

1877 ILOTT, JAMES JOHN, L.R.C.P. Ed., Resident Medical Officer, Whitechapel Union Infirmary, Baker's row, E.

1879 INKSON, JAMES, M.D., Surgeon-Major, Army Medical Department, Brompton, Chatham.

1876 IRWIN, JOHN ARTHUR, M.A., M.D., Brooks's Bar, Manchester.

1864 JACKSON, EDWARD, M.B., Surgeon to the Sheffield Hospital for Women; Fern Bank, Glossop road, Sheffield. *Hon. Loc. Sec.*

1864 JACKSON, ROBERT, M.D., 53, Notting hill square, W.

Elected

1876 JAKINS, ISAAC NEGUS, 32, Osnaburgh street, Regent's park, N.W.

1873 JAKINS, WILLIAM VOSPER, L.R.C.P. Ed., Sturt street, Ballarat, Victoria. [Per Isaac N. Jakins, Esq., 32, Osnaburgh street, Regent's park.]

1872 JALLAND, ROBERT, Horncastle, Lincolnshire.

1878 JAMES, WALTER CULVER, M.D., M.Ch., 11, Marloes road, Kensington, W.

1877 JAMIESON, PATRICK, M.A., 3, St. Peter's street, Peterhead, Aberdeenshire.

1877 JENKS, EDWARD W., M.D., Professor of Medical and Surgical Diseases of Women and of Clinical Gynæcology, Chicago Medical College; 84, Lafayette avenue, Detroit, Michigan, U.S.

1859 JENNINGS, JOSEPH C. S., Abbey House, Malmesbury, Wilts.

1877 JOHNSON, SAMUEL, M.D., 5, Hill street, Stoke-upon-Trent.

1879 JOHNSTON, WM. BEECH, M.D., 157, Jamaica road, Bermondsey, S.E.

1868 JONES, EVAN, Ty-Mawr, Aberdare, Glamorganshire.

1878 JONES, H. MACNAUGHTON, M.D., Physician to the Cork Maternity, and County and City of Cork Hospital for Diseases of Women and Children; St. Patrick's place, Cork.

1868 JONES, JOHN, 60, King street, Regent street, W.

1874 JONES, JOHN THOMAS, L.K.Q.C.P. I., 179, Brixton road, S.W.

1876 JONES, LESLIE, M.D., C.M., 3, Brighton parade, Blackpool.

1873 JONES, PHILIP W., Silver street, Enfield, Essex.

1877 JONES, THOMAS DERRY, L.R.C.P. Ed., 328, Upper Street, Islington, N.

1873 JONES, THOMAS EYTON, Surgeon to the Denbigh Infirmary; Grosvenor Lodge, Wrexham.

1868 JORDAN, WILLIAM ROSS, Surgeon to the Birmingham Hospital for Women; Manor House, Moseley, near Birmingham.

1879 JOUBERT, CHARLES HENRY, M.D., Calcutta.

Elected

1878 JUDSON, THOMAS ROBERT, West Derby, Liverpool.

1875 JUKES, AUGUSTUS, M.B. Trin. Coll. Toronto; St. Catherine's, Ontario.

1878 KANE, NATHANIEL H. K., M.D., Lanherne, Kingston hill, Surrey.

O.F. KEELE, GEORGE THOMAS, 81, St. Paul's road, Highbury, N.

1874 KEMPSTER, WILLIAM HENRY, L.R.C.P. Ed., Oak House, Bridge road, Battersea.

1879 KER, HUGH RICHARD, L.R.C.P. Ed., Roxburghe House, Old hill, near Dudley.

1865* KERNOT, GEORGE CHARLES, M.D., 5, Elphinstone road, Hastings, Sussex.

1872 KERR, NORMAN S., M.D., F.L.S., 42, Grove road, Regent's park, N.W.

1877 KERSWILL, GEORGE, Looe, Liskeard, Cornwall.

1877 KERSWILL, JOHN BEDFORD, M.R.C.P. Ed., Fairfield, St. German's, Cornwall.

1878 KHORY, RUSTOMJEE NASERWANJEE, M.D. Brussels, L.Med. Bombay, Physician to the Parell Dispensary, Bombay, Lecturer to Native Midwives, Grant Medical College, Bombay.

O.F. KIALLMARK, HENRY WALTER, 5, Pembridge gardens, Bayswater. *Council*, 1879-80.

1869 KINGSFORD, C. DUDLEY, M.D., 12, Clapton Common, Upper Clapton, N.E. *Council*, 1879-80.

1860 KINGSFORD, EDWARD, F.R.C.S., Surgeon to the Sunbury Dispensary; Sunbury, Middlesex.

1862 KIRKPATRICK, JOHN RUTHERFORD, M.B. Dubl., Examiner in Midwifery, Royal College of Surgeons, Ireland; 4, Upper Merrion street, Dublin. *Council*, 1872-4.

1872* KISCH, ALBERT, 46, Portsdown road, Maida hill, W.

1867 KNAGGS, HENRY GUARD, M.D., 189, Camden road, N.W.

1877 KNIGHT, CHARLES FREDERICK, 8, Northampton square, Clerkenwell, E.C.

1876 KNOTT, CHARLES, L.R.C.P. Ed., Ashford House, Mile End, Portsmouth.

Elected

1876 LANCHESTER, HENRY THOMAS, M.D., Park House, Park lane, Croydon, Surrey.

1878 LANG, ALEX. M., M.B., 51, Warwick road, South Kensington.

1867 LANGFORD, CHARLES P., 29, Duncan terrace, Islington, N.

O.F. LANGMORE, JOHN CHARLES, M.B., F.R.C.S., 20, Oxford terrace, Hyde park, W. *Council*, 1861-64. *Vice-Pres.* 1869-71.

1872 LATTEY, JAMES, 23, St. Mary Abbott's terrace, Kensington, W.

1875 LAWRENCE, ALFRED EDWARD AUST, M.D., Physician-Accoucheur to the Bristol General Hospital; 15, Richmond hill, Clifton, Bristol.

1878 LEACHMAN, ALBERT WARREN, M.D., Fairley, Petersfield, Hants.

1860 LEISHMAN, WILLIAM, M.D., Physician to the University Lying-in Hospital, Regius Professor of Midwifery in the University of Glasgow; 11, Woodside crescent, Glasgow. *Council*, 1866-68. *Vice-Pres.* 1869-70.

1868 LESLIE, WILLIAM BURNUP, M.D., Stonehaven, Kincardineshire, N.B.

1874 LEWIS, CHARLES FRANCIS, L.R.C.P. Ed., Bromfield's, Henfield, Sussex.

1874 LEWIS, HENRY HARMAN DENDY, 120, Drummond street, Euston square, N.W.

1877 LEWIS, JOHN RIGGS MILLER, M.D., Deputy-Surgeon General, Woodlands, Queen's road, Norbiton, S.W.

1875 LIEBMAN, CARLO, M.D. Vienna, Principal Surgeon, Trieste Civil Hospital, Trieste, Austria.

1876 LILLEY, GEORGE HERBERT, M.D., M.R.C.P., House Surgeon, Bristol Royal Infirmary, Bristol.

1873 LINDSAY, W. B., M.D., Strathroy, Ontario, Canada.

1874 LITHGOW, ROBERT ALEXANDER DOUGLAS, L.R.C.P. Ed., 13, North Brink, Wisbeach, Cambridgeshire.

Elected

1868 LLEWELLYN, EVAN, L.R.C.P. Ed., 9, Mount place, London Hospital, E.

1872* LOCK, JOHN GRIFFITH, M.A., Lansdowne House, Tenby.

1859 LOMBE, THOMAS ROBERT, M.D., Bemerton, Torquay.

1870 LONG, MARK, M.D., 185, Amhurst road, Hackney, N.E.

1878 LORIMER, JOHN ARCHIBALD, 33, Castle street, Farnham.

1874 LOUTTIT, JAMES, M.D., Trafalgar road, Greenwich, S.E.

1872 LOVEGROVE, JAMES F., New Zealand.

1876 LOVETT, HENRY ALBERT, Assistant Medical Officer, County and City Lunatic Asylum, Powick, near Worcester.

1862 LOWE, GEORGE, F.R.C.S., Burton-on-Trent, Staffordshire.

1866 LUCEY, WILLIAM CUBITT, M.D., Southampton, Hants.

1873 LUSH, WILLIAM JOHN HENRY, F.R.C.P.Ed., Associate of King's College, London; Fyfield House, Andover.

1878* LYCETT, JOHN ALLAN, The "Hollies," Graiseley, Wolverhampton.

1869 LYDALL, WYKEHAM H., L.R.C.P. Ed., 19, Mecklenburgh square, W.C.

1876 MABERLY, WILLIAM HENRY, M.D., C.M. Edinb., 1, Minford gardens, West Kensington park, W.

1871 MCCALLUM, DUNCAN CAMPBELL, M.D., Professor of Midwifery and Diseases of Women and Children, McGill University; Physician to the University Lying-in Hospital; and Physician to the Montreal General Hospital; Montreal, Canada.

1878 MACDONALD, ALBERT ANGUS, M.B., 169, Queen street West, Toronto, Canada.

1873 MACDONALD, JOHN ALEXANDER, M.D., Woburn, Bedfordshire.

1879 MACGRATH, WILLIAM MICHAEL, L.K.Q.C.P.I., 32, Colville terrace, Bayswater, W.

1879 MACKEOUGH, GEORGE J., M.D., Royal Free Hospital, Gray's Inn road, W.C.

Elected

O.F. MACKINDER, DRAPER, M.D., Consulting-Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire. *Council*, 1871-3.

1879 MACLAURIN, HENRY NORMAND, M.D., 187, Macquarie street, Sydney.

1877 MACLEAN, NORMAN COLLIER, M.D.

1872 MACMORDIE, WILLIAM KIRKPATRICK, M.D., 1, College square east, Belfast.

1879 MACNEILAGE, DAVID, L.R.C.P. Ed., 15, Whitworth terrace, Spennymoor, Durham.

1879 MACSWINNEY, GEORGE HENRY, M.D., Westall House, Brook green, Hammersmith.

1861 MCVEAGH, DENNIS, L.K.Q.C.P. Ireland, 33, Bishop street, Coventry, Warwickshire.

1859 MADGE, HENRY M., M.D., 4, Upper Wimpole street, W. *Council*, 1863-65. *Vice-Pres.* 1872-4.

1871 MALINS, EDWARD, M.D., Obstetric Physician to the General Hospital, Birmingham; 8, Old square, Birmingham.

1876 MANBY, FREDERICK EDWARD, 10, King street, Wolverhampton.

1876 MANDERS, HORACE, 1, York terrace, York town, Farnborough Station.

1868 MARCH, HENRY COLLEY, M.D., 2, West street, Rochdale.

1860 MARLEY, HENRY FREDERICK, Padstow, Cornwall.

1859 MARLEY, RICHARD, 100, Trafalgar road, Peckham, S.E.

1862 MARRIOTT, ROBERT BUCHANAN, Swaffham, Norfolk.

1876 MARSHALL, FRANCIS JOHN, Resident Medical Officer to St. George's Hospital.

1873 MARTIN, HENRY CHARRINGTON, M.B., C.M., 11, Somers place, Hyde park, W.

1875 MASON, JOHN WALLIS, 1, Osnaburgh terrace, Regent's park, W.

Elected

1877 MASON, SAMUEL BUTLER, L.R.C.P. Ed., Denham House, 11, Park terrace, Pontypool, Monmouth.

1877 MAUNSELL, H. WIDENHAM, A.M., M.D., Pitt and London street, Dunedin, New Zealand.

1867 MAY, HENRY, L.R.C.P. Lond., 37, Birchfield road, Aston, Birmingham.

1877 MAY, LEWIS JAMES, 371, Holloway road, N.

O.F. MEADOWS, ALFRED, M.D.; Physician-Accoucheur to, and Lecturer on Midwifery at, St. Mary's Hospital; 27, George street, Hanover square, W. *Council*, 1862-64. *Hon. Sec.* 1865-66. *Hon. Lib.* 1865. *Treas.* 1867-69. *Vice-Pres.* 1874-6.

1875 MILES, ABIJAH J., M.D., Professor of Diseases of Women and Children in the Cincinnati College of Medicine, Cincinnati, Ohio, U.S.

1871 MILLER, HUGH, M.D., Physician-Accoucheur to the Glasgow Maternity Hospital; 298, Bath crescent, Bath street, Glasgow.

1876 MILLMAN, THOMAS, M.D., Asylum for the Insane, London, Ontario, Canada.

1876 MILSON, RICHARD HENRY, M.D., 88, Finchley road, South Hampstead, N.W.

1869 MILWARD, JAMES, 27, Charles Street, Cardiff.

1869 MINNS, PEMBROKE R. J. B., M.D., Thetford, Norfolk.

1867 MITCHELL, ROBERT NATHAL, M.D., Chester House, Wickham road, Lewisham High road, S.E.

1873 MONCKTON, MARSHALL, L.F.P.S. Glasg., Lenham, near Maidstone, Kent.

1868 MOODELLY, P. S. MOOTOOSAWMY, M.D., Native Surgeon, Uncovenanted Service, Madras [Manargoody, Tanjore].

1877 MOON, FREDERICK, M.B., Bexley house, Greenwich.

1873 MOON, ROBERT HENRY, F.R.C.S., Fern Lodge, Lower Norwood.

1879 MOORE, GEORGE EDWARD, M.B., Maidenhead.

1869 MOORE, JOSEPH, M.D., Counser villa, Balham, S.W.

1859 MOORHEAD, JOHN, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

Elected

1879 MOULLIN, JAMES A. MANSELL, M.A., M.D., 80, Porchester terrace, Hyde park, W.

1878 MOWAT, GEORGE, Longland House, Swansea.

1878 MUIR, JAMES C. P., L.R.C.P. Ed., 44, Cornwall road, Westbourne park.

1877 MURPHY, JAMES, M.D., 3, Borough road terrace, Sunderland.

O.F. MURRAY, GUSTAVUS CHARLES P., M.D., Obstetric Physician to the Great Northern Hospital; 66, Great Cumberland place, Hyde park, W. *Council*, 1864-65. *Hon. Sec.* 1866-69. *Vice-Pres.* 1870-72. *Treas.* 1873-77.

1877 MURRAY, J. JARDINE, 99, Montpelier road, Brighton.

O.F. MUSGRAVE, JOHNSON THOMAS, L.R.C.P. Ed., Irlam villa, 39, Finchley road, N.W. *Council*, 1859-60.

1875 MUSGRAVE, REGINALD VERNON, House Surgeon, Royal Sea Bathing Infirmary, Margate.

1859 NAPPER, ALBERT, Broad Oak, Cranleigh, Guildford, Surrey. *Council*, 1866-68.

1863 NASON, JOHN JAMES, M.B. Lond., 11, Bridge street, Stratford-on-Avon.

1859 NASON, RICHARD BIRD, Nuneaton, Warwickshire.

1859 NEAL, JAMES, M.D., late Hon. Surgeon to the Lying-in Hospital, Birmingham; Barcelona House, Sandown, Isle of Wight.

1866 NEILD, JAMES EDWARD, M.D., Lecturer on Forensic Medicine, Melbourne University; 166, Collins street east, Melbourne.

1876 NESBITT, DAWSON, M.D., 34, Cambridge place, Hyde Park, W.

1876 NEWHAM, JAMES, 16, Princes street, Cavendish square, W.

1859 NEWMAN, WILLIAM, M.D., Surgeon to the Stamford and Rutland Infirmary; Barn Hill House, Stamford, Lincolnshire. *Council*, 1873-75. *Vice-Pres.* 1876-77.

1872 NIBLETT, FRANCIS D., L.R.C.P. Ed., The Grove, Hackney, N.

1878 NICHOLLS, FREDERICK, Toronto Cottage, South Croydon.

Elected

1864 PLAYFAIR, W. S., M.D., F.R.C.P. (PRESIDENT), Physician Accoucheur to H.I. & R.H. the Duchess of Edinburgh; Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital; 31, George street, Hanover Square, W. *Council*, 1867. *Hon. Librarian*, 1868-9. *Hon. Sec.* 1870-72. *Vice-Pres.*, 1873-5. *Pres.* 1879-80.

O.F.* POLLARD, WILLIAM, Surgeon to the Torbay Hospital; Southlands, Torquay, Devon.

1877 POOLE, S. WORDSWORTH, M.D., Dunedin, Sidcup, Kent.

1876 POPE, H. CAMPBELL, M.B. Lond., Broomsgrove Villa, 280, Gold Hawk road, Shepherd's Bush, W.

1864 POTTER, JOHN BAPTISTE, M.D., Obstetric Physician to, and Lecturer on Midwifery and the Diseases of Women at, the Westminster Hospital; 20, George street, Hanover square, W. *Council*, 1872-6. *Hon. Lib.* 1877-8. *Vice-Pres.* 1879-80.

1875 POWDRELL, JOHN, 160, Euston road, N.W.

1863 POWELL, JOSIAH T., M.D., 347, City road, E.C.

1864 PRICE, WILLIAM NICHOLSON, Lecturer on Midwifery and the Diseases of Women and Children at the Leeds School of Medicine; Mount Pleasant, Leeds. *Council*, 1876-8.

O.F. PRIESTLEY, WILLIAM O., M.D., F.R.C.P., Consulting Obstetric Physician to King's College Hospital; and Consulting Physician-Accoucheur to the St. Marylebone Infirmary; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865-66. *Vice-Pres.* 1867-69. *Pres.* 1875-76.

1876 QUIRKE, JOSEPH, L.R.C.P. Ed., The Oaklands, Hunter's lane, Handsworth, Birmingham.

O.F. RADFORD, THOMAS, M.D., Consulting Physician to St. Mary's Hospital, Manchester; Moor field, Higher Broughton, Manchester. *Vice-Pres.* 1859.

1879 RAITH, THOMAS, M.D., Woolwich.

1859 RAMSAY, JOHN ALLEN, L.R.C.P. Ed., The Lawn, Great Shelford, Cambridge.

Elected

O.F. RANDALL, JOHN, M.D., Lecturer on Medical Jurisprudence, St. Mary's Hospital Medical School; Medical Officer, St. Marylebone Infirmary; 35, Nottingham place, W. *Council*, 1877.

1861 RASCH, ADOLPHUS A. F., M.D., Physician for Diseases of Women to the German Hospital; Physician to the Training Hospital, Tottenham; 7, South street, Finsbury square, E.C. *Council*, 1871-3.

1878 RAWLINGS, JOHN ADAMS, M.R.C.P. Ed., 4, Northampton terrace, Swansea.

1870 RAY, EDWARD REYNOLDS, Dulwich.

1860* RAYNER, JOHN, M.D., Swaledale House, Quadrant road north, Highbury New Park, N.

1859 RAYNES, HENRY, Gringley-on-the-hill, Bawtry, Yorkshire.

1877 READ, ARTHUR WALTER, L.R.C.P. Ed., 2, Warwick row, Coventry.

1871 READ, CHARLES, M.B., 1, St. George's square, Regent's park road, N.W.

1879 READ, THOMAS LAURENCE, 11, Petersham terrace, Queen's gate, S.W.

1874 REES, WILLIAM, Priory House, Queen's crescent, Haverstock hill, N.W.

1879 REEVE, HENRY, 24, White Horse lane, E.

1879 REID, WILLIAM LOUDON, M.D., 7, Royal crescent, Glasgow.

1879 RENDLE, RICHARD, 113, Queen street, Queensland, Australia.

1875* REY, EUGENIO, M.D. of Turin, 39, Via Cavour, Turin.

1862 RICHARDS, DAVID, 23, St. George's terrace, Kemp Town, Brighton, Sussex.

1859 RICHARDS, SAMUEL, M.D., 36, Bedford square, W.C. *Council*, 1864-66.

1862 RICHARDS, S. SMITH C., 36, Bedford square, W.C.

O.F. RICHARDSON, RICHARD, L.R.C.P. Ed., Bryngwy, Rhayader, Radnorshire.

1872 RICHARDSON, WILLIAM L., M.D., A.M., Instructor in Obstetrics in Harvard University; Visiting Physician to the Boston Lying-in Hospital; 76, Boylston street, Boston, Massachusetts, U.S.

Elected

1872 RIGDEN, GEORGE, Surgeon to the Canterbury Dispensary 60, Burgate street, Canterbury.

1871 RIGDEN, WALTER, 8, Montpellier square, S.W.

O.F.* ROBERTS, DAVID LLOYD, M.D., Physician to St. Mary's Hospital, Manchester; 23, St. John's street, Deansgate, Manchester. *Council*, 1868-70, 1880. *Vice-Pres.* 1871-2. *Hon. Loc. Sec.*

1867 ROBERTS, DAVID W., M.D., 56, Manchester street, Manchester square, W.

1860 ROBERTS, ROBERT PRICE, Shamrock House, Rhyl, Flintshire.

1874 ROBERTSON, WILLIAM BORWICK, M.D., West Dulwich, S.E.

O.F. ROBINSON, THOMAS, M.D., 5, Woburn square, W.C.

1876 ROE, JOHN WITHINGTON, M.D., Ellesmere, Salop.

O.F. ROGERS, WILLIAM RICHARD, M.D., Physician to the Samaritan Free Hospital; 56, Berners street, Oxford street, W. *Council*, 1870-72.

1874 ROOTS, WILLIAM HENRY, Canbury House, Kingston-on-Thames.

1860 ROPER, ALFRED GEORGE, 57, North End, Croydon, Surrey. *Council*, 1879. *Hon. Loc. Sec.*

1874 ROPER, ARTHUR, 17, Granville park, Blackheath.

1865 ROPER, GEORGE, M.D., Physician to the Royal Maternity Charity; Physician to the Hospital for Diseases of Children and Women, Waterloo Bridge road; 6, West street, Finsbury circus, E.C. *Council*, 1875-77. *Vice-Pres.* 1879-80.

1859 ROSE, HENRY COOPER, M.D., High street, Hampstead, N.W. *Council*, 1875-77.

1879 ROSS, FREDERICK OGILBY, B.A., M.B., the Peninsular and Oriental Company's Ship "Jumar" [care of Mr. John Adams, 49, Oxford Street, Southampton].

O.F. ROUTH, CHARLES HENRY FELIX, M.D., Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61, *Vice-Pres.* 1874-6.

Elected

1874 ROWAN, THOMAS, L.R.C.P. Ed., Hon. Physician to the Lying-in Hospital, Melbourne, Victoria.

1870 RUSSELL, LOGAN D. H., M.D., 8, Alfred street, Gt. George street, Liverpool.

1864 SALTER, JOHN H., D'Arcy House, Tolleshunt D'Arcy, Kelvedon, Essex.

1875 SALZMANN, FREDERICK WILLIAM; Senior Surgeon to the Hospital for Women; 18, Montpellier road, Brighton. *Council*, 1880.

1868* SAMS, JOHN SUTTON, St. Peter's Lodge, Eltham road, Lee, Kent.

1872 SANGSTER, CHARLES, 148, Lambeth road, S.E.

1870 SAUL, WILLIAM, M.D., 4, Charlotte street, Fitzroy square, W.

1863 SAVAGE, HENRY, M.D., Consulting Physician to the Samaritan Hospital for Women, Lower Seymour street, Portman square; 14, Bentinck street, W. *Council*, 1871-2.

1872 SAVAGE, THOMAS, M.D., Surgeon to the Birmingham and Midland Hospital for Women; 12, Old square, Birmingham. *Council*, 1878-80.

1877 SAVORY, CHARLES TOZER, M.D., 1, Douglas road, Canonbury, N.

1879 SCHOFIELD, RT. H. A., M.A., M.B. Oxon., 28, Cambridge gardens, Notting hill, W.

O.F. SCOTT, JOHN, F.R.C.S., 10, Tavistock square, W.C. *Council*, 1868-70. *Vice-Pres.* 1871-3.

1870 SCOTT, JOHN, M.D., New street, Sandwich.

1876 SCOVIL, FRANCIS S., 11, Norton road, Hove, Sussex.

1863 SEQUEIRA, HENRY LITTLE, 34, Jewry street, Aldgate, E.C.

1866 SEQUEIRA, JAMES SCOTT, 34, Leman street, Goodman's fields, E.

1875 SETON, DAVID ELPHINSTONE, M.D., 12, Thurloe place, South Kensington.

1860 SEWELL, CHARLES BRODIE, M.D., 21, Cavendish square W., and 13, Fenchurch street, E.C. *Council*, 1880.

Elected

1862 SHARMAN, MALIM, Surgeon to the Birmingham Free Hospital for Sick Children; 18, New Hall street, and Hollington, Bristol road, Birmingham.

O.F. SHARPIN, HENRY WILSON, F.R.C.S., Surgeon to the Bedford General Infirmary, Bedford. *Council*, 1871-3.

1869 SHAW, HENRY SISSMORE, 88, Upgate, Louth, Lincolnshire.

1859 SHEEHY, WILLIAM HENRY, L.R.C.P. Ed., 4, Claremont square, Pentonville, N.

1875 SHELDON, EDWIN MASON, Surgeon to Stanley Hospital; 223, Boundary street, Liverpool.

1867 SHEPHERD, FREDERICK, L.R.C.P. Ed., 33, King Henry's road, Primrose hill, N.W.

1859 SHIPTON, WILLIAM PARKER, Consulting Surgeon to the Devonshire Hospital; Buxton, Derbyshire.

1874 SIMPSON, GEORGE ALEX. MALCOLM, M.D., Hampstead lane, Highgate, N.

1874 SINCLAIR, ALEXANDER DOULL, M.D., Visiting Physician to the Boston Lying-in Hospital; Member of the Board of Consulting Physicians and Surgeons, Boston City Hospital; 35, Newbury street, Boston, Massachusetts, U.S.

1876 SIRIGNANO, GIOSUE, M.D., 24, Strada Banchi Nuovi, Napoli.

1874 SKINNER, STEPHEN, M.B., Frendale, Clevedon, Somerset.

1879 SLIGHT, GEORGE. M.D., 25, Brewer street, Regent street.

1876 SLOAN, SAMUEL, M.D., C.M., 4, Newton terrace, Glasgow.

1861 SLOMAN, SAMUEL GEORGE, Farnham, Surrey.

1861 SLYMAN, WILLIAM DANIEL, 26, Caversham road, Kentish Town, N.W.

1859 SMILES, WILLIAM, M.D., Surgeon to the House of Correction, Cold Bath Fields; 44, Bedford square, W.C. *Council*, 1879.

1877 SMITH, ARTHUR LAPTHORN, M.D., 41, Beaver Hall terrace, Montreal, Canada.

Elected

1876 SMITH, HENRY BARTON LIDDELL, M.B. and C.M., 29, Charles street, Berkeley square, W.

1867 SMITH, HEYWOOD, M.D., Physician to the Hospital for Women, Soho square, and Physician to the British Lying-in Hospital; 2, Portugal street, Grosvenor square, W. *Council*, 1872-5.

O.F. SMITH, PROTHEROE, M.D., Physician to the Hospital for Women, Soho square; 42, Park street, Grosvenor square, W.

1875 SMITH, RICHARD THOMAS, M.D., Assistant-Physician to the Hospital for Women, Soho square; 53, Haverstock hill, N.W.

1875 SMITH, ERNEST LOUIS TYLER, M.A., M.B. Cant., Hounslow.

1879 SMITH, WM. HUGH MONTGOMERY, L.R.C.P. Ed., 24, London road, West Croydon, Surrey.

1859 SMITH, WILLIAM JOHNSON, M.D., Consulting Physician to the Weymouth Infirmary and Dispensary; Greenhill, Weymouth, Dorset. *Council*, 1869-71.

1878 SMYTH, ALBERT CHARLES BUTLER, L.R.C.P. Ed., 1, Hillside, Crouch Hill, N.

1876 SNELL, EDMUND GEORGE CARRUTHERS, 131, Green street, Victoria park, E.

1866 SOPER, WILLIAM, Medical Officer, Jews' Hospital, Norwood; 4, Clapham rise [283, Clapham road], S.W.

1869 SPAULL, BARNARD, F.R.C.S., Essex House, Vale place, Hammersmith, W.

1868 SPAULL, BARNARD E., 2, Vale place, Hammersmith, W.

1872 SPENCE, JAMES BEVERIDGE, M.D., Earlswood Asylum, Red Hill, Surrey.

1876 SPENCER, LIONEL DIXON, M.D., Bengal Army [care of Messrs. Grindlay and Co., 55, Parliament street].

1862 SPRY, G. FREDERICK HUME, M.D., Surgeon-Major 2nd Life Guards, Army and Navy Club, S.W.

Elected

1876 SPURGIN, FREDERICK WILLIAM, L.R.C.P. Ed., 14, Henrietta street, Cavendish square, W.

1876 SPURGIN, HERBERT BRANWHITE, 49, Abington road, Northampton.

1876 SPURRELL, FLAXMAN, L.R.C.P. Ed., Belvedere, Kent.

O.F. SQUIRE, WILLIAM, M.D., M.R.C.P., 6, Orchard street, Portman square, W. *Council*, 1866-68. *Vice-Pres.* 1876-77.

1877 STAINTHORPE, WILLIAM WATERS, M.D., C.M., Bellingham, Northumberland.

1877 STEPHENSON, WILLIAM, M.D., Professor of Midwifery, University of Aberdeen; 261, Union Street, Aberdeen.

1873 STEWART, JAMES, M.D., 2, Skinner street, Whitby, Yorkshire.

1875* STEWART, WILLIAM, L.R.C.P. Ed., Highfield House, Barnsley, Yorkshire.

1876 STEWART, WILLIAM EDWARD, 16, Harley Street, W.

1879 STILWELL, ROBERT R., M.D., Beckenham, Kent.

1859 STONE, JOSEPH, M.D., 175, Upper Brook street, Manchester.

O.F. STOWERS, NOWELL, 125, Kennington park road, Kennington, S.E.

1866 STRANGE, WILLIAM HEATH, M.D., 2, Belsize avenue, Belsize park, N.W.

1871 STURGES, MONTAGUE J., M.D., Elmstone House, Beckenham, Kent.

1879 SUTCLIFFE, JOHN, 108, Denmark hill, S.E.

1862 SUTTON, FIELD FLOWERS, M.D., Balham hill, Clapham, S.W.

1859 SWAYNE, JOSEPH GRIFFITHS, M.D., Physician-Accoucheur to the Bristol General Hospital; Harewood House, 74, Pembroke road, Clifton, Bristol. *Council*, 1860-61, *Vice-Pres.* 1862-64. *Hon. Loc. Sec.*

1859 SYMONDS, FREDERICK, M.A., F.R.C.S., Surgeon to the Radcliffe Infirmary; 35, Beaumont Street, Oxford. *Council*, 1862-65. *Hon. Loc. Sec.*

Elected

1879 TAIT, EDWARD W., 10, Highbury park, N.

1871 TAIT, LAWSON, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women; Consulting Surgeon to the West Bromwich Hospital; 7, Great Charles street, Birmingham.

1871 TANNER, JOHN, M.D., F.L.S., Physician for Diseases of Women, to the Farringdon General Dispensary, and Obstetric Physician to the Lying-in Charity, Holborn; 102, Harley street.

1859 TAPSON, ALFRED JOSEPH, M.B. Lond., 36, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64.

1863 TAPSON, JOSEPH ALFRED, Surgeon to the Clapham General Dispensary; 83, High street, Clapham, S.W.

1871 TAYLER, FRANCIS T., B.A. Lond., and M.B., Claremont villa, 224, Lewisham high road, S.E.

O.F. TAYLOR, EDWARD, South lodge, Clapham common, S.W.

O.F. TAYLOR, CHARLES, M.D., Pine house, Camberwell green, S.E. *Council*, 1869-71.

1869 TAYLOR, JOHN, Earl's Colne, Halstead, Essex.

1871 TAYLOR, JOHN W., M.D., 34, Queen street, Scarborough.

1878 TAYLOR, JOSEPH OGILVIE, Cottage Place, Chelmsford.

1862 TAYLOR, THOMAS, F.R.C.S., Sutton Coldfield, Birmingham. *Council*, 1875-77.

1872 TEMPLE, JAMES ALGERNON, M.D., Professor of Obstetrics, Trinity College; Physician to Toronto General Hospital; Physician Accoucheur to the Burnside Lying-in-Hospital; 191, Simcoe street, Toronto. *Hon. Loc. Sec.*

1862 THANE, GEORGE DANCER, M.D., 15, Montague street, Russell square, W.C.

1870 THOMPSON, JOHN ASHBURTON, M.D., 207, Caledonian road, N. *Council*, 1877-8.

1867 THOMPSON, JOSEPH, 24A, Regent street, Nottingham.

1878 THOMSON, DAVID, M.D., 17, Market hill, Luton, Bedfordshire.

1874 THOMSON, WILLIAM, M.D., Consulting Surgeon, Peterborough Infirmary, Westgate, Peterborough.

Elected

1874 WARN, REUBEN THOMAS, 37, Highgate road, N.W.

1862 WATKINS, CHARLES STEWART, 16, King William street, Strand, W.C.

1873 WAY, JOHN, M.D., 4, Eaton square, S.W.

1879 WEATHERLY, LIONEL ALEX., M.D., C.M. Aberd., Portishead, Somersetshire.

1867 WEBB, FRED. E., 113, Maida vale, W.

O.F. WEBB, HENRY SPEAKMAN, Welwyn, Herts.

1872 WEBSTER, THOMAS, Malvern House, Redland, near Bristol.

1876 WEIR, ARCHIBALD, M.D., St. Mungho's, Great Malvern.

1867 WELLER, GEORGE, The Mall, Wanstead, Essex.

1876 WELLS, FRANK, M.D., late Professor of Obstetrics and the Diseases of Women and Children in the Cleveland Medical School; 12, West Cedar street, Boston, Massachusetts.

1874 WELLS, HARRY, M.D., H.B.M. Vice-Consul, Gualeguaychu, Entre Rios, Argentine Confederation.

O.F. WELLS, T. SPENCER, F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859. *Vice-Pres.* 1868-70. *Trustee.*

1859 WESTMACOTT, JOHN GUISE, M.D., Medical Officer to the Paddington Provident Dispensary; 19, St. Mary's terrace, Paddington, W.

1876 WHARTON, HENRY THORNTON, M.A. Oxford, 39, St. George's road, Kilburn, N.W.

1870 WHEATCROFT, SAMUEL HANSOM, L.R.C.P. Ed., Litchham, Swaffham, Norfolk.

1860 WHEELER, DANIEL, Chelmsford, Essex.

1877 WHITE, EDWARD, M.D., Terrace, Summer hill, Birmingham.

1873 WHITE, FREDERICK BROAD, 15, Maida vale, W.

1860 WHITE, FREDERICK GEORGE, L.R.C.P. Ed., Castle House, Chepstow, 8, Chislehurst villas, Mount Ararat road, Richmond, Surrey.

Elected

O.F. WHITEHEAD, JAMES, M.D., Physician to the Manchester Clinical Hospital; 87, Mosley street, Manchester. *Council*, 1859-61. *Vice-Pres.* 1868-69.

1877 WIGMORE, WILLIAM, 130, Inverness terrace, Hyde park, W.

1867 WILBE, RICHARD HAYDOCK, M.D., York Lodge, 21, Finchley road, St. John's Wood, N.W.

1879 WILKIN, JOHN FREDERICK, M.D., Beckenham, Kent.

1876 WILKINSON, JOSEPH CRADOCK, 2, Bellevue terrace, Crouch End, Hornsey, N.

1871 WILKINSON, WILLIAM HENRY WHITEWAY, L.R.C.P. Ed., 336, Liverpool road, Islington, N.

1879 WILLANS, WILLIAM BLUNDELL, F.R.C.P. Ed., Great Hadham, Herts.

1879 WILLETT, CHARLES VERRALL, Brandon, Suffolk.

1861 WILLIAMS, ARTHUR WYNN, M.D., Physician to the Samaritan Free Hospital; 1, Montagu square, W. *Council* 1871.

1864 WILLIAMS, EDWARD, M.D., Holt street House, Wrexham.

1867 WILLIAMS, HENRY LLEWELLYN, M.D., 9, Leonard place, Kensington, W.

1872 WILLIAMS, JOHN, M.D., F.R.C.P., Assistant-Obstetric Physician to University College Hospital; 28, Harley street, Cavendish square, W. *Council*, 1875-76. *Hon. Sec.* 1877-9. *Vice-Pres.* 1880.

1859 WILSON, JAMES GEORGE, M.D., Professor of Midwifery in the Andersonian University, Glasgow; Consulting Physician-Accoucheur to the Glasgow Maternity Hospital; 9, Woodside crescent, Glasgow. *Council*, 1863-64. *Vice-Pres.* 1865-67.

1873 WILSON, JOHN HENRY, L.K.Q.C.P. Ireland, Obstetric Physician to the Ladies' Charity and Lying-in Hospital; Kensington Lodge, Kensington, Liverpool.

1860 WILSON, ROBERT JAMES, F.R.C.P. Ed., 7, Warrior square, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec. Vice-Pres.* 1878-80.

Elected

1868 WILTON, JOHN, L.R.C.P. Ed., Chalk Pit House, Sutton, Surrey.

1866 WILTSHIRE, ALFRED, M.D., F.R.C.P., Joint Lecturer on Midwifery at, and Assistant-Obstetric Physician to, St. Mary's Hospital, and Physician for the Diseases of Women to the West London Hospital; 57, Wimpole street, Cavendish square, W. *Council*, 1870. *Hon. Lib.* 1871-3. *Hon. Sec.* 1874-6. *Vice-Pres.* 1877-9.

1877 WINTLE, HENRY, M.B., 12, Park road villas, Forest hill, S.E.

1876 WISE, ALFRED THOMAS TUCKER, M.D., 82, Sutherland gardens, Maida vale, W.

1872 WISE, WILLIAM CLUNIE, M.D., Gothic villa, 241, Burrage road, Plumstead, S.E.

1872 WOOD, ROBERT ARTHUR HENRY, 118, Mount Pleasant, Liverpool.

O.F. WORSHIP, J. LUCAS, Manor House, Riverhead, Sevenoaks, Kent. *Council*, 1875-77.

1876 WORTS, EDWIN, 6, Trinity street, Colchester.

1871 YARROW, GEORGE EUGENE, M.D., 87, Old street, E.C.

1870 YEATES, GEORGE, M.D., Grove road, Walthamstow, Essex.

1874 YOUNG, DAVID, M.D., 13, Via dei Fossi, Florence, Italy [care of Mr. Lewis, Gower Street].

1861 YOUNG, WILLIAM BUTLER, 10, Castle street, Reading, Berks.

1869 YULE, JOHN S. C., Castlefield House, 78, Walmsey road, Bury, Lancashire.

CONTENTS.

PAGE

List of Officers for 1880 v
List of Presidents vi
List of Referees of Papers for 1880 . . . vii
Standing Committees . . . . viii, ix
List of Honorary Local Secretaries . . . x
Trustees of the Society's Property . . . xi
List of Honorary and Corresponding Fellows . xi-xiii
List of Ordinary Fellows xiv
Contents lv
List of Plates lxi
Advertisement lxii

January 1st, 1879—
Annual Meeting 1
Report of the Honorary Librarian (J. B. POTTER, M.D.) . . . . 2—4
Audited Report of the Treasurer (HENRY GERVIS, M.D.) . . . . 2—3
Passing of the Alterations in the By-laws as circulated among the Fellows before the Meeting . 4
Annual Address of the President (CHARLES WEST, M.D.), with Obituaries of Deceased Fellows . 5
Officers elected for 1879 18

February 5th, 1879—
Forceps for the Removal of an Ovum or retained portion of Placenta from the Uterus, exhibited by Dr. HICKINBOTHAM 22
Ovary of a Healthy Woman, æt. 25, Murdered by a Stab which divided the Femoral Artery, shown by Dr. GALABIN 23

PAGE

Bones from an Extra-uterine Fœtation which had undergone Spontaneous Cure, shown by Dr. O. PRIESTLEY 24

Tumour which had been Protruded from the Rectum during Labour, exhibited by Dr. BARNES . 28

Pocket-Case containing Apparatus for Injecting the Uterus in cases of Post-partum Hæmorrhage, shown by Dr. POTTER 29

Inaugural Address of the President (WILLIAM S. PLAYFAIR, M.D.) 29

I. On Digital Dilatation of the Os in Labour. By JAMES BRAITHWAITE, M.D. (of Leeds) . . 38

March 8th, 1879—

A Greenhalgh's Pessary removed with difficulty from the Vagina, shown by Dr. Galabin . . 49

A Metallic-stem pessary, with an external support, removed from a patient who had worn it for five years and a half, shown by Dr. W. S. PLAYFAIR . 50

Uterus from a case of severe uterine hæmorrhage, and injection of perchloride of Iron, exhibited by Dr. CORY 51

Two specimens of Pyometra, one caused by atresia of the cervix, and the second the cervix widely open, exhibited by Dr. MATTHEWS DUNCAN . . 54

An unilateral Uterus and Kidney (solitary) with two ureters, shown by Dr. BRAXTON HICKS for Dr. Ogston, junr.. 57

Polypus recently removed from a woman æt. 60, shown by Dr. GODSON 57

II. Notes on a Fœtus, By H. S. WILSON, M.D., (communicated by Dr. Herman) 58

III. The delivery of a Monster. By R. H. A. SCHOFIELD M.B. 71

IV. Report of a Case of fatal Embolism of the right Heart and Pulmonary artery, nineteen days after delivery; with a few clinical remarks. By GEORGE ROPER, M.D. 74

V. Case of Abortion, followed by Septicæmia and fatal cardiac Thrombosis. By J. T. MUSGRAVE, L.R.C.P. Ed. 81

PAGE

April 2nd, 1879—

Double Monster, exhibited in July 1878, since dissected by, and again exhibited by, Dr. GODSON . 88

Set of Pocket Instruments contained within an ordinary cylindrical speculum, shown by Dr. GODSON 90

New Midwifery Forceps, designed by Dr. Marshall of Mortlake, in which each blade is allowed to rotate on its axis by means of a pivot joint, shown by Dr. BARNES 90

Two ovaries (double ovarian congenital inguinal hernia) presented by Dr. T. CHAMBERS . . 92

VI. On a case of Extra-uterine Pregnancy (with appendices of notices of other cases). By C. H. F. ROUTH, M.D. 93

May 7th, 1879—

Extra-uterine Fœtation, shown by Dr. PERCY BOULTON 117

Specimen of a rare form of Fœtal Monstrosity, show by Dr. BRUNTON 118

VII. Unilocular Cyst involving both Ovaries and with both Fallopian Tubes attached. By J. KNOWSLEY THORNTON, M.B., C.M. . . . 119

VIII. On the use of Forceps and its alternatives in lingering Labour [introducing the discussion on the use of the Forceps], by ROBERT BARNES, M.D., F.R.C.P. 121

DISCUSSION on the use of the FORCEPS and its alternatives in lingering Labour . . . 141

President 141, Dr. George Kidd 141, Dr. Thorburn (of Manchester) 146, Prof. Stephenson (of Aberdeen) 150, Dr. Newman (of Stamford) 153, Dr. Malins (of Birmingham) 155, Mr. Alderson 158, Mr. Worship (of Sevenoaks) 159.

June 4th, 1879—

Midwifery Forceps with simple method of increasing its compressive power, shown by Dr. J. THORBURN 162

IX. Uterine outgrowth removed during Pregnancy, premature Labour, Death from obstruction of Intestine. By J. KNOWSLEY THORNTON, M.B., C.M. . 163

PAGE

X. Tubal Gestation, and the effects of chronic Retro-uterine Hæmorrhage. By ALBAN DORAN, F.R.C.S. 169

Adjourned DISCUSSION on the use of the FORCEPS and its alternatives in lingering labour . . 171

Dr. Edis 171, Dr. Lombe Atthill (of Dublin) 178, Dr. McClintock (of Dublin) 185, Dr. Bassett (of Birmingham) 192, Dr. Henry Bennet 193, Dr. Cranny (of Dublin) 194, Dr. Savage 196.

July 2nd, 1879—

Second adjourned DISCUSSION on the use of the FORCEPS and its alternatives in lingering labour . 201

Dr. G. Roper 201, Dr. Braxton Hicks 218, Dr. Cleveland 226, Dr. Daly 227, Dr. Grailly Hewitt 229, Dr. Swayne (of Bristol) 233, Dr. Wm. S. Playfair (President) 235, Dr. Barnes, 238—47.

October 1st, 1879—

XI. Cholera in the Newly Born. By Dr. JOHN C. LUCAS, F.R.C.S., Surgeon H.M's. Indian Army (communicated by Dr. MATTHEWS DUNCAN) . . 250

Photographs of a Dwarf upon whom the Cæsarian section had been performed, and who died three days after of Peritonitis, exhibited by Dr. BRAXTON HICKS 253

XII. Deficient development of the Uterus, Atresia of the Os externum, Atrophy of the Ovaries, Insanity. By ALBAN DORAN, F.R.C.S. . . 253

XIII. A case of Congenital Inguino-ovarian Hernia (double), Operation, Recovery. By THOMAS CHAMBERS, F.R.C.P. Ed. 256

Report on ditto. By Dr. JOHN WILLIAMS and Dr. A. L. GALABIN 269

XIV. Note on an Acoustic Sign heard after the death of the Fœtus. By ROBERT HARVEY, M.D., Calcutta (communicated by Dr. PLAYFAIR) . . . 273

November 5th, 1879—

XV. Fibroma of both Ovaries. By CHARLES JAMES CULLINGWORTH, F.R.C.S. (of Manchester) . . 276

Origin of Ovarian Cystoma from Graafian Follicles, and presence of limpid fluid in true Ovarian Cysts: microscopic sections exhibited by Dr. GALABIN . 288

PAGE

Pieces of Uterine Decidua illustrating the extent to which the ovum may occasionally be interfered with without abortion occurring, exhibited by Dr. PLAYFAIR 290

Apparatus for dilating the Uterine Canal by continuous elastic pressure, exhibited by LAWSON TAIT 291

XVI. On New Methods of operation for repair of the Female Perinæum. By LAWSON TAIT, F.R.C.S. . . 292

XVII. On Expression of the Cord. By J. MATTHEWS DUNCAN, M.D. 302

Microscopic section of a portion of Menstrual Decidua passed on the first day of Menstruation, shown by Dr. GALABIN 312

Section from the anterior lip of the Cervix Uteri from a case of deep Bilateral Laceration with ectropion, shown by Dr. GALABIN 312

Thick gelatinous Cord, illustrating the necessity for more than ordinary care in tying, shown by Dr. CLEVELAND 313

Uterus, with oviducts and ovaries, removed during the operation of Hysterectomy, &c., exhibited by Dr. HEYWOOD SMITH 313

Report on Mr. Cullingworth's specimens of solid Tumours of both Ovaries, by J. KNOWSLEY THORNTON, M.B., F.R.C.S., and ALBAN DORAN, F.R.C.S. 314

Report of experimental Inquiry instituted to determine with what fluids and by what methods the operation of Blood Transfusion may best be performed, and to ascertain the effects, immediate or remote, which result from the operation in animals. By E. A. SCHÄFER, F.R.S. . . . 316

—— Appendices A to D . . . 331—44

—— Discussion on ditto . . . .

Dr. W. S. Playfair 344, Dr. Braxton Hicks 345, Dr. Champneys 346, Dr. Aveling 346, Dr. Schäfer (reply).

INDEX 349

ADDITIONS TO THE LIBRARY 361

LIST OF PLATES.

PLATE	PAGE
I. Double Congenital Inguino-ovarian Hernia (Dr. T. Chambers)	256
II. Uterus, showing Cystic Villi occupying Venous Sinuses of Uterine Wall (Dr. Coby)	50
III. Solid Tumours of both Ovaries (Mr. Cullingworth)	276

Woodcuts.

Profile view of external Generative Organs of a Fœtus (Dr. H. S. Wilson) 59
Front view of Generative Organs of a Fœtus (Dr. H. S. Wilson) 61
Diagram showing arrangement of Genito-urinary Organs (Dr. H. S. Wilson) 63
Dissection of a Double Monster: Stomachs and course of the intestines to either Anus (Dr. Godson) . . 89
New Midwifery Forceps designed by Dr. Marshall; diagram illustrating danger of the use of Pivoted Blades (Dr. Aveling) 91
Fibroma of both Ovaries: Vertical Section showing position of Tumour in relation to the Uterus (Mr. Cullingworth) 279
Operation for Repair of the Female Perinæum: Reverted Flaps, Lines of Incision, Circular, Septal, and deep Perinæal Stitches (Mr. Lawson Tait) . . . 296
Ditto (ditto) . . . 298
Glass Cannulas used in Transfusion (Dr. Schäfer) 334–36
Tracings of the Pressure in the Femoral Artery of a Dog, Figs. 1—3 (Dr. Schäfer) 342

ADVERTISEMENT.

THE SOCIETY is not as a body responsible for the facts and opinions which are advanced in the following papers and communications read, or for those contained in the abstracts of the discussions which have occurred, at the meetings during the Session.

53, BERNERS STREET,
OXFORD STREET, W.

OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1879.

ANNUAL MEETING.

JANUARY 1ST, 1879.

CHARLES WEST, M.D., F.R.C.P., President, in the Chair.

Present—37 Fellows and 2 visitors.

The ballot for the election of officers and council for the year 1879 was declared open, by the President, for one hour, and Fred. Heudebourck Gervis, M.R.C.S., and Frederick Wallace, M.R.C.S., were appointed scrutineers.

Books were presented by Dr. Arthur Edis and Dr. Wm. Goodell.

Walter Culver James, M.D., was admitted a Fellow of the Society; and Arthur Flint, M.R.C.S. (Westgate-on-Sea); N. Henry K. Kane, M.D. (Kingston Hill); and Frederick Nicholls, M.R.C.S. (South Croydon), were declared admitted.

The following gentlemen were elected Fellows:—Jas.

T. Crowden, M.D. (Gedney Hill); George Elder, M.B. (Nottingham); Wm. M. MacGrath, L.K.Q.C.P.I.; Rt. H. A. Schofield, M.A.M.B.; L. A. Weatherly, M.D. (Portishead); and John F. Wilkin, M.D. (Beckenham).

The following gentlemen were proposed for election:—Philip Addis, L.R.C.P. Ed. (Iver); Hugh R. Ker (Dudley); James Inkson, M.D. (Brompton, Chatham); Charles W. M. Moulin, M.A., M.D.; Thomas Laurence Read, M.R.C.S.; George Herbert Wade, M.R.C.P. (Chiselhurst); and Charles Verrall Willett, M.R.C.S. (Brandon).

The Report of the Treasurer, Dr. Gervis, with the audited balance sheet, was then read, and its reception and adoption being moved by Dr. Edis, and seconded by Dr. Wiltshire, was carried unanimously.

The report of the Librarian was then read, and its adoption was moved by Dr. Aveling, seconded by Dr. Daly, and was also carried unanimously.

Report of the Honorary Librarian.

Mr. PRESIDENT and GENTLEMEN,—I have again to congratulate the Society upon the flourishing condition of its library. The number of readers and borrowers of books has been quite up to the usual average.

The principal event of the year has been the acquirement, at an almost nominal sum, of the obstetrical portion of the library of the late Dr. Blundell. It consisted of 342 volumes, some of the sixteenth, but principally of the seventeenth and eighteenth centuries; and 258 of these were not already in the Society's library. The remaining 84 duplicates were offered to the Fellows of the Society for purchase, and 47 of them have been disposed of in this way. For the reception of these books it became necessary to add an additional bookcase and some shelves, and now all the space at our disposal has been utilised.

BALANCE-SHEET OF THE OBSTETRICAL SOCIETY OF LONDON.

(Abstract of the Receipts and Expenditure for the year ending December 31st, 1878.)

1878. RECEIPTS.	£	s.	d.
To balance in hand from balance-sheet for 1877	139	15	1
(1). SUBSCRIPTIONS received during 1878: 639 at £1 1*s*.	670	19	0
(2). COMPOSITION FEES: 2 at £10 10*s*.	21	0	0
(3). MIDWIFERY EXAMINATION FEES	5	10	0
(4). SALE OF TRANSACTIONS, &c.	58	10	7
(4*). Resale of Duplicate Books from the Blundell Library	3	13	3
(5). INTEREST on 3 per cent. consols: January, 1878 . £18 1 10; July, 1878 . 17 18 9	36	0	7
Amount of stock, 3 per cent. consols, standing in the names of the Trustees: January, 1879 . £1221 6 0			
	£935	8	6

By EXPENDITURE.	£	s.	d.
(1). TRANSACTIONS: Printing, Lithography, Paper, and Binding, Composition of Index, Donation Lists, &c., and delivery of Volumes (including additional Lithography for previous Volumes, £5 13*s*.)	241	14	0
(2). LIBRARY: Books Purchased . £48 5 9; Blundell Library, ditto . 20 0 0	68	5	9
(3). LIBRARY AND MUSEUM: Rent, Salary, Petty Expenditure, Insurance, Bookcases, &c.	289	1	8
(4). EXPENSES OF MEETINGS, &c.: Meeting-room, Expenses of Meetings, Collection of Subscriptions, Postage, Stationery, Banking Expenses, Printing Regulations for Midwives, &c.	129	9	8
(5). Donation to Harvey Tercentenary Memorial Fund	26	5	0
Balance in hand at Bankers, January, 1879	180	12	5
	£935	8	6

December 21st, 1878.

Examined and found correct,

FREDERICK H. DALY,
FANCOURT BARNES, } *Auditors.*

The ordinary additions to the Library consist of 115 volumes, 45 of which have been presented, and the remainder obtained by purchase. The total number of volumes now in the Library amounts to 2660.

I cannot conclude this report without referring, as my predecessors have done, to the efficient and valuable services of our excellent Sub-Librarian, Mr. Watson, to whom I am under considerable obligation for courteous and unfailing help at all times.

JNO. B. POTTER, M.D.

The PRESIDENT then rose and alluded to the circumstances attending the preparation of the alterations of the Bye Laws which were proposed by the Council, and copies of which had been sent round to all the Fellows with the circulars of the Annual Meeting.

The President stated the reason for the alteration proposed in each chapter, seriatim, and the chapters were successively adopted by the meeting *nem. con.*

With regard to the word "men" in Section III, Chap. I, the President said that the change had been made in consequence of a question which had arisen a few years ago as to the eligibility of female practitioners to the Fellowship of the Society. The word "practitioner" had been replaced by the word men in order to remove any doubt upon this point in future.

The PRESIDENT then delivered his Annual Address.

ANNUAL ADDRESS.

GENTLEMEN,—It seems but yesterday since I thanked you for the honour, the unexpected, unmerited honour, which you had done me in electing me your President; and now, at the end of two years so quickly flown, I stand here for the last time to resign into your hands the honour and the trust.

First of all, gentlemen, let me thank you for the kindness with which you have borne with me, the unvarying courtesy with which you have received me, the friendliness with which you have seconded every effort I have made for the advancement of the interests of the Obstetrical Society.

You have already given your verdict on those changes in the laws by which your Society is governed which the Council, after mature and most patient consideration, thought that the experience of five and twenty years had shown to be desirable. I sincerely hope that the alterations that you have sanctioned will help to secure the greater usefulness and more abiding prosperity of the Society.

In its internal affairs this prosperity is unabated, and the number of our Fellows has even slightly increased. Our greatest trouble is that we need more space to provide for the yearly increase of our library, and for the proper display of our valuable collection of casts and instruments and drawings. This subject, I have no doubt, will engage the attention of my successor in this chair, and of the new Council, his coadjutors.

I had hoped to congratulate you on this occasion upon the regulations proposed by this Society for the education, examination, and registration of midwives having become the law of the land. The principles of the scheme not only met with the approval of the Medical Council, but

January last. He was born in England, at Sandgate, in Kent, in 1810; received his early education in Guernsey, and at St. Servan, in France, and after a short trial of the Navy, in which service his father held the rank of captain, he entered the medical profession. He began his career as a pupil of Mr. Amesbury, who had considerable reputation some years ago in London as an orthopædic surgeon, and completed his studies at Guy's Hospital, taking the membership of the College of Surgeons in 1834. After a short trial of his fortunes in London and at St. Servan he visited Canada, and settled at Toronto, with the University of which city he connected himself. He seems to have been a man of much energy, of which no better proof can be given than the fact that after he had been some years in practice he re-visited London in order to refresh his knowledge in the medical schools of the metropolis, and to obtain the Fellowship of the College of Surgeons. Such a man's success was as well deserved as it was considerable. His reputation was not confined to that of an obstetrician, though it was as Professor of Obstetrics in one or other of the medical schools of Toronto that he was known as a teacher. He was a skilful surgeon, and is said to have had the same name in Canada as an ovariotomist as his still abler compeer, Dr. Peaslee, had in the United States. He was active in all medical matters, a frequent contributor to the journals, though I am not aware that he was specially distinguished as a writer; but he was evidently a man of much practical ability. His services were valued as a member of the Medical Council of Ontario, and Dean of the Medical Faculty of Toronto. He was much respected, much beloved, and the friend who writes a brief notice of him says that "he leaves a blank very difficult to fill." This is high praise. It is not mine, but that of those who knew him best.

There remain four of our ordinary Fellows whose names call for mention. I regret that I cannot speak of them from personal knowledge.

The first is Dr. Shearman, of Rotherham, M.D., of the

University of Jena, Member of the London Colleges of Physicians and Surgeons, and a Fellow of the Royal Society of Edinburgh, who died on October 3rd, 1878. He was born at Wrington, in Somersetshire, studied at St. George's Hospital, became a Licentiate of the Apothecaries Company in 1820, and, after a short stay in a small Yorkshire town, settled in general practice in Rotherham in 1823. He was successful and passed, as successful country doctors often do, and do well, from the hard life of the general practitioner to the less fatiguing duties of the consultant. He obtained a degree from the University of Jena in 1841, and became first an Extra-Licentiate, and then, in 1868, a Member of the College of Physicians. He was a man of active mind, always busy, and that beyond the bounds of his own profession; of much public spirit too, and anxious for the prosperity of the town where his life had been passed and his fortune made. He took a large share in the establishment of the Rotherham Hospital, and was for many years one of its physicians, and helped both with his purse, and in other ways, the Literary and Scientific Society and the Mechanics Institute, to the latter of which he gave a valuable collection of books and instruments. He wrote a few papers of no great importance on medical subjects; but though a Fellow of our Society he never contributed to its 'Transactions.' His energy and activity continued almost to the last, and he took with him when he died the respect and regret of very many of his fellow citizens. I do not know where the fault lay which deprived him of the cordial friendship of some of his colleagues. Perhaps it was, and if so it will do none of us harm to lay it to heart, that he may not always have lost sight of himself, the worker, in the work he did. The condition may seem a hard one. I believe it is essential to the permanence of all the work we do.

There are many histories of members of our profession like those of Dr. Steele and Dr. Bloxam; of men working hard all their lives, irreproachable in conduct, untiring in

diligence, attaining at last to barely a modest competency, in some cases not even to that, and lying down worn out to die before old age has come. If any man has set his heart on making money he will do well to choose some other walk in life than ours.

Dr. Alfred Steele died of chronic disease of the kidneys at the age of fifty-eight, on the 9th of October last, in Liverpool, where he had practised all his life, having given up the house-surgeoncy at the Nottingham Hospital to take a similar position at the Liverpool Workhouse Infirmary. When he left that post he by degrees got into practice in the city. He lectured on obstetrics, and is said to have lectured extremely well. He became obstetric physician to the Liverpool Infirmary, and besides his labours as a practitioner and a teacher, he devoted much time to the interests of the Lancashire and Cheshire Branch of the British Medical Association, of which he was secretary and afterwards president. Probably he cultivated too assiduously the very barren field of medical politics which, as far as my observation goes, for I have never tilled it, yields thorns and thistles only to the honest husbandman, but a rich harvest to the adventurer and quack. The too-hackneyed phrase that "he lived respected and beloved, and died lamented by all who knew him," appears in Dr. Steele's case to have been eminently true.

With equal truth may the same be said of Dr. William Bloxam, who died on November 5th, 1878, at his house in Mount Street, in his fiftieth year. He came of a medical family; his father was a well-known practitioner, and a very popular teacher of midwifery in my younger days, and his uncle was much respected as the leading medical man at Ryde, in the Isle of Wight. He studied at St. George's Hospital, where he was much esteemed and liked by his fellow-students. He took the degree of M.D. at St. Andrew's in 1862, and for a short time was one of the lecturers on midwifery at the Grosvenor Place School of Medicine, but on its discontinuance he did not further engage in teaching. The only appointment he held, and

he held it for many years, was that of Medical Officer to the St. George's and St. James's Infirmary, where he must have gained much of that knowledge which went to make him, what by general consent he was, a most excellent practitioner.

Just at the last moment I have heard of another death, news of which comes with an added note of sadness, of a man, young, able, devoted to his profession, dying in its pursuit, a martyr to science; for Dr. Koch, of Colombo, died at the early age of some thirty years, of a wound received in examining a dead body. It seems to me far sadder, I do not think it is entitled to less honour, than the soldier's death on the field of battle. He was a native of Colombo, descended from one of the good old Dutch burgher families. He went to Calcutta, and there was one of the best pupils in the Medical College, as says my friend, Sir Joseph Fayrer, and his *best* is like the Hall mark, it must be real gold that bears it. The rest I tell in Sir Joseph Fayrer's own words :—"After finishing his studies in India he came to England, and graduated. He returned to Ceylon, and became Principal and a professor in the Medical School at Colombo. He was the moving spirit, and the great supporter of all progress in that institution, and it proved to be a great success. He was a thorough gentleman, an excellent physician and surgeon. In all respects he was a good man, and his premature death was deplored as a national calamity. You cannot speak too highly of him. You will, I am sure, touch a responsive chord in his own country." Gentlemen, what can I add to this?—"In all respects a good man." There is no more to say. May as much be said of you and me!

It has struck me over and over again, while writing these brief life notices, how poor and bald and unsatisfactory they must seem to the friends and relatives of the deceased. But what can I do? Their inner life is too sacred for me to raise, if I could, the veil which hides it; its recollection must be cherished in the privacy of home, and friends may, I think, be content if the record borne by a censorious

world concerning those whom they loved is that each in his separate walk did his duty, and left behind him an untarnished name.

My task is nearly done, and I have but to make mention of two more of our fellows, who held the distinction of our Honorary Fellowship, Dr. Fleetwood Churchill, and Dr. Edmund Peaslee; two men who, though widely different in character, had in common unwearied diligence and unselfish aims, and met their well-deserved reward, not in success only, but in the respect and affection which attended them when living, and which follows their memories now that the grave has closed over them.

The former of the two, our countryman, Dr. Fleetwood Churchill, was an Englishman by birth, an Irishman by adoption, cosmopolite by his erudition, a successful practitioner, a valued teacher both with tongue and pen, but above all a high-toned Christian gentleman, who would have done honour to any country, and reflected credit on any profession. He was born at Nottingham in 1808. Of his early years I know but this, that he showed from very boyhood a special interest in the pursuit of medicine, and that he betook himself to Edinburgh for its study, taking his doctor's degree in 1831. I do not know what induced him to devote himself specially to that department of medicine which he did so much to improve, but it was in order to perfect himself in midwifery that he first went to Dublin. He is not the first person who has found more than he sought in journeying. Dr. Churchill found friends, and a wife, and a happy home, worldly success, and a wide field for doing good. What could man wish for more, and so the apprentice ended his travels—*Wanderjahre* the Germans call them—somewhat speedily, and settling down for life in the Irish capital, all but changed his nationality. Having become a Licentiate of the King's and Queen's College of Physicians, he established a small Lying-in Hospital, and in connection with it opened a class for the instruction of students in midwifery. He soon became a very successful teacher, and his pupils all learned to look on

him as a personal friend. He now also published his 'Theory and Practice of Midwifery,' which passed, as it deserved, through several editions. Of all the many works which he wrote, this is perhaps the most thoroughly satisfactory, for in it experience controlled the results of his reading, and the directions which he lays down for the guidance of the practitioner are clear and positive. His reputation and practice increased from the date of its publication, but he was not the man to be rendered indolent by success. Valuable papers and elaborate treatises came in quick succession from his pen, while he discharged with reputation the duties of King's Professor of Midwifery in the School of Physic—no easy task for any one whose predecessor in the chair had been the accomplished Dr. Montgomery. His "Researches in Operative Midwifery" appeared for the most part as detached essays in journals, and in their collected form can scarcely stand side by side with the exhaustive "Operationslehre" of Kilian, on the one hand, or with the valuable practical teachings of one of your past Presidents, Dr. Barnes, on the other. His 'Manuals of the Diseases of Children,' and of the 'Diseases of Women,' have passed through several editions, both in this country and America, have been translated into several languages, and served as text-books for many generations of students. They illustrate his strong points and his weak ones; his untiring industry, his wide acquaintance with the literature of each subject, but at the same time his want of critical faculty and of original power. He did too much; an occasional respite from labour would have been well repaid; or better still it might have been, could the key of his library for a few years have been taken from him, and could he have been sent to work in the wards and at the bedside, with nothing to distract his observation. But he worked honestly and thoroughly, achieved for himself a well-merited eminence in his own department, and won a warm place in the hearts of his friends by his honorable, simple character, and his lovable disposition. He was a man of general cultivation

and of wide sympathies. He interested himself much in all forms of missionary enterprise, and especially also in the fortunes of the Irish Church after its disestablishment. One is always glad to find people with interests and pursuits outside their profession, and gladder still when one finds that, in all, their motto like Dr. Churchill's is, "Sursum Corda." This, indeed, is a point in his history on which I must for a moment dwell, because it is opposed to a doctrine and a practice which appear to be gaining ground apace,—that a doctor is to confine himself as a citizen to matters strictly medical, to circumscribe his action within the limits of his own profession, instead of making his profession a starting-point whence to arrive at more extended usefulness. In a certain sense the rule is a wise one; it saves wear and tear of mind, it enables a man to avoid disputes; he is friend with every one; there is nothing to interfere with his success, and "Men shall praise thee if thou doest well for *thyself*," said one of old. I have no doubt but that the man of whom the Eastern apologue tells us that his Master condemned him for not trading with his talent was eminent in his profession, amassed a large fortune, and had inscribed upon his tombstone that he never made an enemy.

When health began to fail him, some two and a half years before he died, Dr. Churchill gave his valuble library to the College of Physicians, and retired to the country, where, in the house of his daughter and son-in-law, "all that should accompany old age" attended him. He lived there beloved by all, and there he died peacefully on January 31st, 1878, leaving to his widow a name to be proud of, to his children an example to imitate.

Edmund Randolph Peaslee was born at Newton, in New Hampshire, in the United States, on January 22nd, 1814, studied at Dartmouth College, where he graduated in arts in 1836, and for some two years acted as tutor there. He subsequently engaged in the study of medicine, took his doctor's degree at Yale College Medical School, and followed the good practice of his countrymen in paying

a long visit to Europe. He began practice at Hanover, in New Hampshire, and taught anatomy and surgery in the Dartmouth and Bowdon Colleges, and having already acquired a high reputation both as a practitioner and teacher, he removed to New York in 1858, where he occupied the chair first of obstetrics and afterwards of gynæcology. His great claim to our Honorary Fellowship, and the work on which his reputation rests, was his treatise on ovarian tumours and ovariotomy, published in 1872. The book merits and has received very high praise. It is sytematic, clear, candid, and takes account of every question which can arise with reference to ovarian disease. The conclusions at which the author arrives are controlled, in large measure, by his own experience, and are always sound and moderate, but, of course, the writer, the total number of whose cases of ovariotomy amounted at that time to only twenty-eight, cannot adopt as decisive a tone as another whose cases are counted by hundreds. Dr. Peaslee's fame, already high, was greatly extended by the publication of this book, and with increased fame came also large increase of practice. There seems, indeed, but little doubt that his premature death, at the age of 64, was in a great degree owing to the incessant overwork which his practice forced upon him. It was his great good fortune that, remarkable as his success was, it yet in his case stirred no enmities, for he seems to have had a special power of personal attraction which drew to him all with whom he came in contact; a charm which our friend, Dr. Barnes, tells me that he felt powerfully on his own visit to America. This day last year he was well, and one might have reckoned on a new edition of his book, or on other good work, the fruit of his ripe experience, but he caught cold on a journey, was attacked by pneumonia, and died after six days' illness on the 31st of January, 1878. The New York Academy of Medicine passed a resolution on the occasion of Dr. Peaslee's death which was so highly eulogistic that it might be supposed to admit, as official documents often do, of some abatement, if it were not that his

professional brethren came from long distances to add their testimony of respect and affection, and to attend his funeral, while those who could not come sent messages of regret. The members of the New York Academy of Medicine did not content themselves with the formal record of their sorrow, but at the meeting one after another rose up to add something more to the tribute of regard with which all looked on him while living, all mourned him when dead. To have merited and gained so high a name, and such large success, yet never to have stooped to what was unworthy, to have kindled no jealousy, excited no envy, is a happiness which falls to the lot of very few, and is in itself the highest praise.

I have thus, to the best of my ability, gone through the list of our losses, happily not more numerous than each year too surely brings. I cannot leave this chair without the expression of my most heartfelt wishes for the prosperity of the Society. I do not know that I can prove their sincerity better than by offering to you, most respectfully, one or two suggestions with reference to its future.

My one regret when I entered on my office is still my one regret on quitting it—namely, that the labours of the Society are circumscribed within such narrow limits, and that they comparatively seldom overstep the boundaries of pure obstetrics. An art so entirely experimental as midwifery must of necessity present to all who follow it a number of problems which each practitioner, year by year, answers for himself, and answers, for the most part, as they have been answered by others years before. A first voyage round the world, a first visit to a far distant country, is full of novelty to the sailor or to the traveller. But the chart of the voyage has long been laid down, the map of the country is in the hands of all; the individual indeed has profited, but a record of his experience would teach little to others. I think we should all, both for the sake of medical knowledge in general, as well as for the improvement of ourselves in particular, deviate more than we have

done from the familiar path, and from time to time say with the poet—

"To-morrow
To fresh fields and pastures new."

I would urge it, too, for this additional reason, that I do not believe any Society can continue long to flourish which limits its work within too narrow boundaries. I would gladly see general physicians and surgeons seek our Fellowship, take a share in our debates, and contribute to our "Transactions." The Chinese have a curious art in gardening, by means of which they dwarf the oak, and from the acorn raise, not one of the giants of the forest, but a stunted shrub. I do not know wherein else the secret consists, but the result is partly due to the tree being planted in a narrow box which gives its roots no room to grow, and prevents the wholesome changes of the soil. To take an illustration from another class of subjects still more familiar to us all; we know that the effect of breeding in and in is to deteriorate the race. I am anxious also for this widening of our boundaries for, if I may so say, a moral reason; that, namely, of preventing personal jealousies and petty feelings from obtaining an entrance into your Society. Family quarrels are proverbially bitter, and I know of no surer mode of preventing them than the adoption into your family of as many as possible not strictly belonging to it; not having the same class of ambitions or interests as yourselves, but bound up with you in the common aim of advancing knowledge and benefiting mankind.

And lastly, gentlemen, may I, in descending from the eminence to which you have raised me, be allowed to borrow the words of one who, had he lived in our day, would have belonged to us, and whose spirit I should wish to be Perpetual President of the Obstetrical Society—William Harvey. In instituting the annual oration at the College of Physicians he uses words which, with scarcely a change, it behoves us well to ponder. He exhorts the Fellows to "search and study out the secrets of Nature,

but also for the honour of the profession to continue mutual love and affection amongst themselves, without which neither the dignity of the Society can be preserved, nor yet particular men receive the benefit of their admission into the society which they might expect, ever remembering that *concordiâ res parvæ crescunt, discordiâ magnæ dilabuntur.*"

At its conclusion it was moved by Mr. SPENCER WELLS, and seconded by Dr. PLAYFAIR,

"That the best thank of the Society be given to the retiring President, Dr. Charles West, for the courteous and efficient manner in which he had presided over the meeting of the Society during his term of office, and that he be requested to allow his admirable address to be printed in the Transactions."

The President returned thanks to the proposers of the vote and the meeting.

It was then moved by Dr. HENRY GERVIS and seconded by Dr. HEYWOOD SMITH,

"That this meeting desires to express its best thanks to the retiring Vice Presidents, Dr. Aveling and Dr. L. T. Cumberbatch, the retiring Librarian Dr. J. B. Potter, and to the other retiring members of the Council, for their valuable services, and interest in the affairs of the Society during the time they have been in office."

The result of the ballot was declared by the President, and the following is the list of officers for the ensuing year.

Honorary President.—Arthur Farre, M.D., F.R.S.

President.—William S. Playfair, M.D.

Vice Presidents.—James Braithwaite, M.D. (Leeds);

Arthur W. Edis, M. D.; John Baptiste Potter, M.D.; George Roper, M.D.; Robert James Wilson, F.R.C.P. Ed. (St. Leonards); Alfred Wiltshire, M. D.

Treasurer.—Henry Gervis, M.D.

Honorary Secretaries.—John Williams, M.D.; Clement Godson, M.D.

Honorary Librarian.—Alfred Lewis Galabin, M.A., M.D.

Other Members of Council.—John Wright Baker (Derby); R. S. Fancourt Barnes, M.D.; John S. Bartrum, F.R.C.S. (Bath); Percy Boulton, M.D.; Robert Cory, M.B.; Frederick Henry Daly, M.D.; James Matthews Duncan, M.D.; George Eastes, M.B.; Frederick Heudebourck Gervis; George Ernest Herman, M.R.C.P.; William Carter Hoffmeister, M.D. (Cowes); William Hope, M.D.; Henry Walter Kiallmark; C. Dudley Kingsford, M.D.; Alfred George Roper (Croydon); Thomas Savage, M.D. (Birmingham); William Smiles, M. D.; Thomas James Walker, M.D. (Peterborough).

FEBRUARY 5TH, 1879.

WILLIAM S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—58 Fellows and 9 visitors.

The minutes of the previous meeting were read and confirmed.

Books were presented by Dr. Matthews Duncan, Dr. E. S. Dunster, Prof. G. B. Ercolani, Dr. G. Eustache, Dr. George Johnston, Prof. Schroeder, Prof. T. Gaillard Thomas, Prof. Spiegelberg, and St. Bartholomew's Hospital.

The following gentlemen were admitted Fellows of the Society:—William Mitchell MacGrath, L.K.Q.C.P.I.; John F. Wilkin, M.D. (Beckenham, Kent); Wm. John Vereker Bindon, M.D.; Benjamin Browning, L.R.C.P., M.R.C.S.; James C. P. Muir, L.R.C.P., L.R.C.S., Ed., and Rustomjee Naserwanjee Khory, M.D. (Bombay).

And the following gentlemen having returned their obligation papers duly signed, were declared admitted as Fellows of the Society:—Izett William Anderson, M.D. (Kingston, Jamaica); Richard Ellery, L.R.C.P. Ed. (Toronto), and Albert C. B. Smyth, L.R.C.P. Ed. (Brighton).

The following gentlemen were elected Fellows :—Philip Addis L.R.C.P., Ed. (Iver); H. R. Ker, L.R.C.P., Ed. (Dudley); James Inkson, M.D. (Brompton, Chatham); Jas. A. M. Moullin, M.D.; Thomas L. Read, M.R.C.S.; G. H. Wade, M.R.C.P. (Chiselhurst); and Chas. V. Willett, M.R.C.S. (Brandon).

The following gentlemen were proposed for election :—Alban H. G. Doran F.R.C.S.; G. L. Evershed, M.R.C.S. (Arundel); Sir Jos. Fayrer, M.D., K.C.S. Ind.; Tho. W. H. Garstang, M.R.C.S.; Geo. T. McKeough, M.B.; Geo. E. Moore, M.B. (Maidenhead); Rt. R. Stillwill, M.D. (Beckenham); E. W. Tait, M.R.C.S.; J. Knowsley Thornton, M.B., C.M., and Wm. Blundell Willans.

Dr. HICKINBOTHAM exhibited a new forceps for the removal of an ovum, a retained portion of placenta, or a shred of membrane, from the uterus. The blades, instead of having the usual scissor-like action, are connected by a weak spring, like sugar-tongs. By this arrangement, great delicacy of touch is obtained. A more important improvement is the addition of a separate blade, which, when applied to its fellow, gives a grip along its whole length, as in craniotomy-forceps. This modification renders it possible for the instrument to be passed through an extremely small opening, and makes its grasp on a shred of membrane very secure. The blades, being separable, can be used alone or with a finger. Dr. Hickinbotham also showed a new intra-uterine stem, which instead of the usual disc at its base, has a continuation of the stem which springs apart on being inserted, and is thus much easier to introduce than any of those in general use. He showed also a short Fergusson's speculum with a piece of one side cut out so that the os might be touched with the finger.

Dr. AVELING agreed with Dr. Hickinbotham that the finger was far better than any form of forceps for removing an ovum.

If any forceps was used, Dr. Rasch's was perhaps the best, as the finger formed one blade of the instrument. Dr. Aveling remarked that the plan of having the side of a speculum fenestrated to permit visual and digital examination was not new. It had been adopted by Churchill and others.

Dr. GALABIN showed the ovary of a healthy woman, æt. 25, who was murdered by a stab which divided the femoral artery, with microscopical sections of the mucous membrane of the uterus. At the autopsy this mucous membrane was seen to be soft and gelatinous looking, and about the sixth of an inch in thickness. It had also various spots of hæmorrhage in its substance, but no blood on its surface. It was evident from this and from the microscopic appearance that menstruation was just impending, though no history could be obtained of the date of the last period. In the deeper half of the mucous membrane the glands were much dilated, so that the section had a cribriform appearance to the naked eye, and disruption easily took place at this level. The condition resembled, on a small scale, the expansion of gland cavities which takes place in pregnancy, and is described as forming the surface of disruption for the puerperal decidua. Some of the cylindrical epithelium had fallen off from the surface and from the dilated glands in consequence of post mortem maceration, the autopsy not having been made until thirty-six hours after death, but enough remained on the surface to show that no menstrual desquamation had commenced. The mucous membrane had a sharp border of demarcation from the muscular wall, and its upper half was more dense and fibrous than the deeper portions. The right ovary contained a follicle ¾ inch in diameter, nearly filled by a clot of blood which was partially decolorised, but there was no apparent commencement of cell growth from the walls of the follicle to form a corpus luteum. As far as could be judged from the appearance of the clot, the follicle must have been ruptured as much as three or four days.

Dr. PRIESTLEY showed bones from an extra-uterine fœtation, which had undergone spontaneous cure. He said—

"On May 25th, 1866, I was asked to see a patient with Dr. Maurice Davis, who has kindly furnished me with short notes of the case.

"On the 16th of April, soon after she had been somewhat exhausted by sick nursing, and had gone a week over a menstrual period, the catamenia commenced. A day or two afterwards at the sea side, where she had gone for the benefit of her health, she was seized with severe pains "as if in labour." These pains continued more or less for a fortnight, and were accompanied with scanty blood discharge, and followed by frequent attacks of vomiting with faintness.

On the 10th of June a slight swelling was perceptible in the right iliac region, where a fixed pain was complained of, but later in the month a much larger swelling became perceptible in the left iliac region, and this was found on examination to fill a large portion of the pelvis; the os uteri being tilted forwards towards the pubes. At this time, the patient having regained somewhat her ordinary health, some of the usual symptoms of pregnancy appeared. There was regular morning sickness; swelling of the breasts, with darkened areolæ round the nipples, and moisture to be squeezed out of them. There was frequent and prolonged, but scanty escape of blood from the vagina, like a catamenial flow until August 22nd, when all coloured discharge ceased.

"On the 22nd of August there was a smooth semi-elastic painless tumour, loosely filling the pelvis, and ascending above its brim. The cervix was pressed forward against the brim as in retroflexion; the os was somewhat patent, the anterior lip thick and distinct, the posterior lip was lost in the volume of the tumour. It was indeed difficult to determine at this stage, whether the case was one of retroflexion combined with lateral displacement of the gravid uterus, or one of extra uterine fœtation.

There was a smaller tumour in the right iliac region, and a distinct bruit de souffle was audible above the pubes.

"On the 13th of September, the tumour on the right side had so increased as to reach the height of the umbilicus. The bruit was still heard with the stethoscope. The whole posterior part of the true pelvis was occupied by a swelling, in which it was imagined the overlapping bones of a fœtal head could be felt. Looking back at this time to the probable date of pregnancy, it was determined that it could not well date back farther than the 25th of March.

"On October 14th the patient had several distinct rigors, followed by fever, and pains intermitting like labour pains. There was much constitutional disturbance, pain in the back, heartburn and flatus, and sleep and ease were only procured by morphia.

"Dr. Arthur Farre, Dr. Oldham, and myself, then saw the patient with Dr. Davis in consultation, and the balance of opinion was in favour of the case being one of extra uterine fœtation. The growth had progressed as in pregnancy. There was a large hard mass to the right of the abdomen, a distinct elastic or cystic formation to the left, and much tenderness to pressure. No fœtal limbs could be felt, and no fœtal heart could be distinguished clearly, because of the rapidity of the maternal pulse which varied from 100 to 120. The pelvis was filled with a solid portion of tumour, and the semblance of cranial bones in the concavity of the sacrum was even more marked.

"The patient was evidently very ill, but the symptoms were not considered sufficiently grave for operative interference, and it was recommended, that the patient should be carefully watched, and the symptoms prescribed for as they arose.

"On the 12th of November after the evacuation of hardened scybalæ from the bowels, the febrile symptoms declined, the pulse fell, and the abdomen became less tender. From this date forwards, the patient gradually regained strength and spirits, the bruit could no longer

be heard by the stethoscope, and the abdominal swelling gradually lessened in size.

"On the 7th of December the catamenia returned, and on the 27th of February, the notes state that the catamenia recur normally, and the tumour is confined to the left side and is continuously shrinking, the patient gradually returning to her usual habits of life.

"In February of the last year, 1878, nearly twelve years having elapsed, this same patient appeared at my house complaining of pelvic discomfort, with offensive purulent discharge from the vagina; on examination, I found a hole in the vaginal wall, just behind the cervix uteri, with a piece of loose bone projecting. This proved to be a fœtal bone and was removed under an anæsthetic administered by Mr. Clover. The same operation was repeated from time to time, as successive portions of bone presented themselves at the aperture, until all those shown to the society were secured. They form the chief portions of a fœtal skeleton, the last operation was in July, and since then there has been no symptom of discomfort, the patient having quite regained her usual health. I cannot but think that the case is instructive, as indicating that such instances may best be left to pursue their ordinary course without operation unless symptoms arise threatening immediate danger to life, as in Mr. Jessop's case, published in the 'Transactions.' At any rate it proves that it may be well to wait and see what nature will effect before subjecting the patient to a hazardous operation."

The PRESIDENT asked if Dr. Priestley thought the case one of tubal gestation which had ruptured at an early period and became developed in the abdomen.

Dr. BARNES observed that Douglas's pouch was the ordinary seat of extra-uterine gestations; and that as a rule it was good and safe practice to puncture tumours behind the uterus in this place, with a view to treatment as well as to diagnosis. He did not think a rule to abstain from opening such a cyst could be drawn from the history of this one case. The patient had incurred considerable risk from the course adopted.

Dr. BANTOCK thought a question of such importance was not

to be settled by a single case, however striking. The conditions were so various that it was impossible to lay down a general rule, and each case must be treated according to the circumstances. He had no doubt the proper course was pursued in the case recorded. It was well known that this was one of the natural modes of termination, but for every case that had terminated in this way several could be found with a different result. He had no doubt that, could we ascertain the exact state of things at an early stage, that operation would be found the most satisfactory mode of treatment. He hoped a subject of such importance would ere long be the subject of an exhaustive debate.

Dr. ROGERS desired to ask the author of this very interesting case why it was there were so many operations and such delay in removing the fœtal bones sent round, as the chloroform which was given so often in this case ought to have enabled the author to remove the whole of the contents at one or two sittings, within the last four or five years. Dr. Rogers had had three cases of this kind; in one of these he had been able to remove at one sitting a far larger amount of bones and of larger size than were shown by Dr. Priestley. In this case the sac opened of itself into rectum, one of the others burst also into rectum, and all the bones came away in a day or two without instrumental aid; the third was tapped per vaginam, and bones which were also very small came away without other interference. Of course much of the difficulty of extraction depended on size of opening and of the fœtal bones. Dr. Rogers thinks that no hard-and-fast law should be laid down with regard to treatment in such cases, as, should urgent symptoms arise, Dr. Rogers would not hesitate to open the sac, as he had done in several cases, not only without any bad result, but he begged to say with great relief to the sufferings of the patient, if not even the prevention of the bursting of the sac into the peritoneal cavity with fatal result, which is a possible danger not to be ignored.

Dr. PRIESTLEY, in reply to questions, said he believed it was sound practice not to interfere in cases of extra-uterine fœtation during the progress of acute symptoms, unless there was imminent peril to the life of the mother; and although in his case the patient had twice had short attacks of illness, yet at no time was there any urgent need for surgical operation. He thought he might go further and say it would eventually be acknowledged that in most cases where the diagnosis of extra-uterine fœtation had been made out, it was best to treat the symptoms by the expectant method, meeting each one as it arose, and parrying the dangers as they presented themselves; leaving the case otherwise to the natural process of cure. The process of cure consisted in the death of the fœtus, its gradual conversion into adipocere, and the subsequent extraction of the bones. This would not preclude operative interference in the less frequent

instances, where the mother's life was in immediate danger, and he would not hesitate in a case of instant and grave peril to have recourse to a severe remedy. The history of the case brought before the Society, as well as many others of a like kind, showed that spontaneous recovery is one of the incidents in the natural history of these abnormal conditions, and a medical man in charge of a case of extra-uterine fœtation, need not necessarily conclude that he is bound to operate for the safety of his patient; indeed, if symptoms of danger are absent, he may do well to avoid such interference.

Dr. BARNES exhibited a tumour which had been protruded from the rectum during labour. The subject, a lady who had had ten children, suffered from what was then taken to be prolapsus of the rectum during her ninth labour three years before. The mass had been returned under this belief. At her recent labour, coming under the care of Dr. MacCormac of Sydenham, the tumour came down again, and he was expected to return it; but as it appeared to him not to be the rectum, and the mass was large, threatening strangulation, he sent for Dr. Barnes. The tumour proved to be a dense growth from the margin of the anus, the rest of the circumference of the anus being occupied by piles more or less indurated. At one point it was greenish as if about to sphacelate. It was removed next day by the galvano-cautery wire; it had a broad base, and Dr. Barnes looked upon it as an outgrowth from a hæmorrhoidal tumour. Dr. Goodhart examined it minutely and reported:—"The greatest part of the mass is composed of loose fibro-cellular tissue covered in by a tough and altered mucous membrane. But the deeper part of it—that part by which it was attached and others also—is cavernous in structure; indeed, is little else than erectile tissue, so much of it is composed of dilated veins. The fibrous part runs into the erectile part in such a manner as to induce me to think that the tumour has originated in some chronic overgrowths of connective tissues round a pile." Where attached to the anus, the tumour was the size of an ordinary orange.

Dr. POTTER showed his pocket case, containing the apparatus for injecting the uterus in cases of post-partum hæmorrhage. Its novelty consists in its portable form; it contains a long vulcanite tube (ten inches) divided into three pieces; a Higginson's syringe and a bottle containing one ounce of dry perchloride of iron, the case measuring $5 \times 4 \times 1\frac{3}{4}$ inches. The perchloride is put into a deep basin with two tumblers' full of water (sixteen ounces), the pieces of tube screwed together and attached to the syringe, the instrument is now ready for use. It can also be used for injections of simple hot water, and by combining two of the pieces of tube it forms an admirable vaginal syringe.

Made under the superintendence of Mr. Banks, of the firm of Maw, Son, and Thompson.

The PRESIDENT then delivered his Inaugural Address.

INAUGURAL ADDRESS.

GENTLEMEN,—My first and most pleasing duty is to offer to the Fellows of the Society my respectful and heartfelt thanks for the distinguished honour they have done me in electing me their President. Ever since I commenced practice in London this Society and its work has been one of my chief centres of professional interest, and I am proud to confess that it has always been to me a matter of anxious hope that at some distant time I might be privileged to hold the position which, through your favour, I assume to-night, far sooner than I had ever ventured to anticipate. I trust you will believe that I am correspondingly grateful, and that I will endeavour, to the utmost of my ability, to justify the confidence with which you have honoured me. And, indeed, I may truly say, for the encouragement of our younger Fellows, that I know of no class of work which more surely carries with it its own reward, in the highest sense of that word, than that in which such a Society as ours is engaged. In our hospitals and private practice we gain,

it is true, much experience, but the contact with the experience of others, and the very criticism, sharp and unpleasant though it may sometimes be, which our most cherished views are apt to meet when brought under the notice of our fellow-labourers, is of inestimable value in preventing us from becoming over-dogmatic and one-sided, and in forcing on us that breadth of view which is so essential for a truly scientific practice of our profession.

It has been well remarked by one of our most talented essayists that, "whatever our calling, we can never rise in it unless we exalt to an exaggerated degree the elevation of the calling itself;" and he quotes, in illustration of this, Hazlitt's well-known saying, that "the city 'prentice who did not think the lord mayor in his gilded coach the greatest of human beings would come to be hanged." If I might paraphase that dictum and apply it to ourselves, I might say that the obstetrician who did not consider his own department of practice to be the most important of all branches of medical science was unworthy of the office which, through your suffrages, I occupy to-night. Whatever, gentlemen, may be my failings and shortcomings in other respects, that, at least, is not one of them; for I have always felt, and striven to maintain to the utmost of my power, that, whether as a subject of scientific study, full of interest, possessing much ground yet untilled, and offering a rich harvest of results to the zealous cultivator, or as a branch of practice which includes much of the daily work of the practitioner, and involves the deepest and most anxious responsibilities which he has to deal with, there is no department of medicine of greater importance than that which it is the special province of this Society to foster and to advance. Unfortunately, as we all know, this view of the importance of obstetrics is not universally entertained, and there is still much prejudice and much misunderstanding amongst those who have the chief voice in the management of our ancient medical corporations, and, on that account, much influence upon medical legislation, as to the proper scope and position of this branch of medicine. In

saying this, I attach no special blame. We all know how difficult it is to shake off old views and prejudices, how strong the conservative instinct is in all of us, and how much any given way of looking at a subject is a matter of education. I am therefore far from thinking that the non-recognition of the claims of obstetric medicine is at all surprising. On the contrary, in a department of practice the large development of which is of such recent date, it is, I believe, only what might have been expected, and might, I doubt not, be paralleled in a hundred other instances. At the same time there is all the more reason why those who know better should use their utmost endeavours to bring about a more satisfactory state of things, and in this, what may be called its political aspect, I cannot but think that a Society such as ours will find a most important sphere of work. The promised medical legislation, which is likely soon to occupy Parliament, will, no doubt, afford us abundant opportunity of expressing our views on such subjects as the licensing of midwives and the like, to which the attention of the Council has already been seriously directed. It is not, however, my intention to occupy your time by a consideration of all that might be done in this direction. There are, however, two points in particular on which I think it is our bounden duty to bring the weight of our opinion as strongly as possible before the profession, and on these I must beg your permission to make one or two brief observations.

One of these is the very unsatisfactory constitution of the Medical Council as regards obstetric medicine. It seems to me to be nothing less than absurd that in what is supposed to be a representative assembly, there should not be a single individual who practises that department in which nineteen out of twenty members of the profession are so largely interested. Is it surprising that whenever obstetric questions come before the Council they are dealt with in a manner which is so thoroughly unsatisfactory? Nor is there the slightest reason why this anomaly should

exist. The names of several of our fellows will at once suggest themselves to you, who, from their position and talents, are in every way admirably qualified for a seat in the Council, and whose opinion would necessarily carry with it much weight.

The other point is the present state of the curriculum in the medical schools as regards obstetrics. This has been recently forcibly dwelt on by one of our vice-presidents, Dr. Edis, in his introductory address at the Middlesex Hospital School of Medicine, which is worthy of your study. The subject is not, however, a new one. All, or nearly all, the teachers of midwifery in London have already collectively expressed their opinion upon it, and to them, if they are desirous of doing their duty honestly, the question is one of vital moment. I confess that it is with a feeling of something akin to shame that I reflect that I am supposed to teach a class of young men the entire subject of Midwifery and the Diseases of Women and Children in a short summer course of something under forty lectures. The thing is a manifest and ridiculous absurdity. Hence we have, of necessity, to omit, year by year, at least half of midwifery proper, while as to the diseases of women and children it is simply impossible even to allude to them. The result is that students leave our schools more ignorant of obstetrics than of any other subject, acquiring by a superficial cram only sufficient knowledge to satisfy the limited requirements of most of our examining boards; and, if they are satisfied, as so many are, with the diploma of the Royal College of Surgeons only, even that limited acquaintance with midwifery is unnecessary. I suppose I am not guilty of any serious breach of confidence if I state that at a recent meeting of the Fellows of the College of Physicians, one of the examiners of the College, himself a respected ex-president of this Society, drew attention to the ignorance displayed by the candidates for the College licence as to the application of instruments, and proposed that the College should, by a circular, direct the attention of the teachers at the vari-

ous schools to this point. I would venture to suggest that he was here putting the saddle on the wrong horse. It is not the teachers who are to blame for not effecting impossibilities, but the system, for which the College of Physicians is itself partly responsible. It is especially to be deplored that in the metropolis, where we should naturally expect a high example to be set, the medical corporations are the worst offenders in this respect; for while the Royal Colleges of Physicians and Surgeons, and even the University of London, are satisfied with a certificate of attendance on a single three months' course of lectures on midwifery, the Universities in Scotland insist on a course of not less than 100 lectures, while the Calcutta Medical College, an institution in every way admirable, with which I had myself the honour of being formerly connected, requires two courses of seventy lectures each. In the face of such facts, well may the late Principal of that College write to me, "I am proud to think that some of you will not rest until you have seen this great evil set right. To what a hideous extent is the practice of midwifery carried on in England by utterly unqualified men, whom the unhappy women and their friends believe to be qualified, and the system in our hospitals sadly favours this." You, gentlemen, who have acquired the knowledge you ought to have gained at your schools by much subsequent study and painful experience could, I doubt not, tell many a sad story of health blighted and homes rendered desolate by this lamentable ignorance of a large and important part of practice. So long as legislation is conducted, and examinations regulated, by those who are themselves entirely ignorant of obstetrics, reform is next to hopeless. I think, however, that you will agree with me that it is the duty of a Society such as this to agitate the question, and not to rest satisfied until obstetrics are placed on an equality with the cognate subjects of medicine and surgery, with which, whatever may be said to the contrary, the common sense of the profession has long placed them, both as regards teaching at our schools and proper testing at our examina-

tions. Nor has the Council of this Society, with whom the initiative in such matters rests, ever been backward in its duty on these points in the past, and it may be trusted to be no less mindful of the interest of our subject in the future, whenever a fitting opportunity presents itself.

Questions such as these, however, important though they be, have little to do with the practical work of our Society. It may not, perhaps, have struck many of you that we are this year entering on a very interesting epoch of our existence. Founded in the year 1858, we are commencing our twenty-first year, and are coming of age. Many of our original Fellows are happily still amongst us, some of them are, doubtless, here to-night, and I am sure that they may look with pride and complacency on the healthy and vigorous manhood of their child. Beyond any doubt the Obstetrical Society of London has far more than fulfilled the hopes and anticipations of its founders. The steady annual increase in the number of our Fellows is, of itself, as good a practical proof of its thoroughly satisfactory condition as could be desired; but much more important than this is the real honest work that it has done, the numerous valuable contributions to obstetric medicine contained it its 'Transactions,' and the high opinions entertained of it by the profession in all parts of the world. When newly born there were some who looked with a little suspicion on the bantling, and held aloof from it. The Society always felt a lively regret that amongst these were two of the most eminent obstetricians in the metropolis, men whose support a society with our aims could ill afford to do without, and whose co-operation it would have given much to gain. If any further proof were required of the way in which our youth has been passed, it would be found in the fact that one of these now holds the office of our honorary President, the other has just vacated this chair, which he has filled for two years with an unfailing courtesy and an unwearied effort to promote the interest of our Society, which have never been surpassed by any of his predecessors, and which need no comment from me, although

they may well fill me with apprehension that, judged by so high a standard, you may deem in the future that I have failed in properly fulfilling the duties with which you have entrusted me.

If we are asked to what the exceptional success of the Society has been due, I think the proper answer would be that it was not to any special energy or talent on the part of its founders and Fellows, but to the fact that it deals with subjects of deep practical interest to a large majority of the profession, the discussion of which was nowhere else adequately attempted, and that it thus supplied an obvious want. Even this, however, would not have been a sufficient explanation, were it not that the subjects it more particularly is occupied with had made such astonishing progress within a comparatively short space of time. It is, of course, impossible for me to occupy your time with any attempt to prove this assertion by a review of the state of obstetric science as it is now and as it was at the time the Society was founded. It would not, however, be difficult to show you that even with regard to midwifery proper there are few departments of practice in which more work has been done in a short period; while as to gynecology, we may surely say that, as a scientific study, it is an entirely new creation. Take, for example, the standard works on Diseases of Women, some of forty or fifty years ago, such as those of Sir Charles Mansfield Clarke and Gooch, and although they contain, especially the latter, much accurate observation and graphic description, yet you will not find in them even the most distant allusion to nine tenths of the work with which the modern gynecologist is so familiar. The reason of this rapid progress is obvious. Until careful local examination, both digital and instrumental, was commonly practised in diseased conditions of the uterus, any knowledge of its morbid states was merely conjectural. The gynecologist, before this was common, was in the position of the general physician with regard to diseases of the heart and lungs before the discovery of auscultation, of the oculist who knew nothing of the

ophthalmoscope, or of him who treats diseases of the larynx without the laryngoscope. Now we may truly say that there is no organ of the body the condition of which can be more accurately ascertained than that of the uterus. And it would be difficult to speak of this subject without recognising the extraordinary impetus it derived from the zeal of its earlier cultivators, especially from that of my old master, Sir James Simpson, whose contagious enthusiasm and energy, misdirected although we may admit them sometimes to have been, yet were of enormous value in promoting the study of the diseases peculiar to women.

Like all comparatively new subjects, however, gynecology has hitherto progressed more by empirical observations and experimental practice than by careful scientific investigation based on ascertained pathological facts. I would venture to impress this upon you as strongly as possible, because I am sure you will agree with me, that if we are to remedy our defects, it is wise frankly to recognise them. It is true that it is specially difficult for us to pursue the necessary pathological inquiries, since they are incompatible with the safe practice of midwifery. Still empirical observations, which are not verified and tested in this way, are always apt to lead us astray. We can no more talk with certainty, for example, of such conditions as endometritis, flexions, or ovaritis, without a knowledge of the condition of the parts affected, than could the general physician of pneumonia from a study of crepitation and dulness on percussion only. It is from the want of this kind of knowledge, as it seems to me, that we have so much of those crude theories and hasty generalisations, with consequent errors in practice, on which our opponents are apt to insist so much. And it must, I fear, be admitted that there is some ground for this sneer. It is beyond doubt that we have had regrettable cycles of opinion as to the importance of certain classes of uterine disease. Some ten or fifteen years ago, every anxious female inquirer asked if she was ulcerated; now, most of our patients express the sentiment, if they do not use the

words, of the lady who, the other day, imploringly said to me, "Doctor, for God's sake, tell me—am I displaced?" Admitting this, it is very far from being the case, as so many erroneously conclude, that no attention need be paid to such conditions as the so-called ulceration or abrasion, or to flexions. Rather let us draw from this the lesson to study these lesions more deeply; let us ascertain in what they really consist—what cases require treatment, and of what kind; and we may be sure that when our knowledge is deeper and more scientific than it is now, divergences of opinion and errors of practice will vanish. If our work is conducted in this spirit, we need have no fear that in due course of time it will gain the respect and adhesion of those who now look upon it with doubt and suspicion.

It has been objected to gynecology that it is more liable to abuse than many other departments of practice; that some of its followers have traded upon the fears and fancies of hysterical women, and magnified their ailments to their own advantage. I am not concerned to deny that there are some peculiarities in this line of practice which lend themselves to such deception, if the practitioner be dishonest enough to avail himself of them, but I do most strenuously deny that this has ever been the case to any appreciable extent; and if black sheep have existed or do exist among us, I am very sure that the free and open discussions of a Society such as this are, of all other things, the very best for bringing reprobation on such conduct, and preventing others from following the evil example.

And now, gentlemen, I shall not farther trespass upon your good nature; but, in conclusion, shall, as it is most fitting I should, renew before you the obligation contained in our rules, which all of us have taken on joining the Society, "I hereby promise that I will, to the utmost of my power, promote the honour and interests of the Obstetrical Society of London."

Dr. Fitzpatrick exhibited a uterus with its contents at full term. He said he had been called on to make

a post-mortem examination, in order to vindicate the character of a midwife who had been in attendance on a patient, when the latter became delirious and died in a few hours. No blame was attributable to the midwife, for, though labour was imminent, it had not actually begun, and death was caused by mischief in the cranium. Dr. Fitzpatrick said he could not resist the opportunity that presented itself of removing the uterus, thinking that the condition of the organ at full term could not fail to interest some of the Society's members. In opening the abdominal cavity the excision had extended into the anterior wall of the uterus, but it was immediately sewn up, and none of the contents escaped in that way. The incision corresponds to a point immediately below the umbilicus, and to the upper third of the left forearm of the fœtus.

ON DIGITAL DILATATION OF THE OS IN LABOUR.

By James Braithwaite, M.D. Lond.,

LECTURER ON DISEASES OF WOMEN AND CHILDREN AT LEEDS SCHOOL OF MEDICINE; SURGEON TO THE HOSPITAL FOR WOMEN AND CHILDREN.

The first stage of labour is often unduly prolonged, the amount of dilatation effected being quite out of proportion to the length of time consumed, so that the patient becomes wearied and exhausted before the real effort is required. This may arise from various causes—causes so familiar that it is unnecessary to dwell upon them. There are also occasions in which a rapid dilatation of the os uteri is desirable or necessary—cases of severe puerperal convulsions, occurring simultaneously with the commencement of labour, and requiring as rapid a completion of labour as possible to save the patient's life.

Our means of assisting dilatation in such cases are most unsatisfactory. Barnes's dilators, valuable though they are

in many cases, are not always suitable, and digital dilatation as ordinarily practised is of but little use, and indeed is not suitable for the period of labour in question. Two years ago I was detained a day and night in a country house by a case in which the membranes having been long ruptured the thick and fleshy os would not dilate, or did so so slowly and imperfectly that the patient's strength became at last exhausted. There was a little narrowing of the brim, and with each pain the head descended, covered to a great extent by the os and impinged upon the bones. With the fingers of one hand I tried to assist dilatation, but almost in vain. After the lapse of some hours I delivered her with the greatest difficulty by means of the long forceps passed within the os. The child was living but died the same day, owing to a bulging inwards of a portion of one parietal bone, the size and shape of half a small watch glass.

I blamed myself very much at the time for this occurrence, as no doubt it was caused by the forceps, though I think not by the point of a blade, as they had taken good hold and had not slipped. I made a small incision at the edge of the depression and restored the bone to its place by raising it with the small blade of a new and sharp pair of scissors. The wound bled very freely, but the bleeding was arrested by pressure, though not entirely, for a little oozing occasionally occurred, and owing to the feeble state of the child from prolonged labour sufficed to turn the scale against it.

This occurence was naturally very painful to me, for though I think I may say I have attended hundreds of forceps cases in my own practice and in those of other medical men, I never met with anything of the kind either before or since. The difficulty in this case was entirely caused by the slow dilatation of the external os, and if I had possessed any means of dilating it I believe the child's life would have been saved. I may say the mother recovered without a bad symptom. I had Barnes's dilators with me, but did not use them, having previously

found that in such cases they are inapplicable, owing to the impossibility of getting a sufficient portion of the bag within the os and retaining it there. The only other instrument likely to be of any use would have been the ingenious dilator of Mr. Herbert Morgan, of Lichfield. This is a conical india-rubber bag, the shape in section of an equilateral triangle. The flat top is stiffened by canvas, though not so as to prevent its being folded for the purpose of introduction, but sufficient on expansion within the os to cause it to resist withdrawal when traction is made upon the tube attached to the opposite angle. The bag having been expanded with air or water precisely imitates the natural mode of dilatation by the membranes.

I believe this to be a valuable instrument, but like other valuable things it is not always at hand when wanted.

The mode of using the fingers as a dilator, which it is the object of this paper to explain, and which was originated by reflecting upon the case related, differs from any of the methods of digital dilatation in that both hands are brought into play at the same time. Probably my meaning will be betterunderstood, and certainly its value, if it possess any, be more fully appreciated by a relation of cases rather than by a formal explanation.

Mrs. P—, primipara, eight and half months pregnant, blonde, complexion almost colourless, legs œdematous. She was suddenly roused from sleep in the middle of the night by the loud noise of a passing fire-engine. She immediately became convulsed, and went on from bad to worse, until by noon next day death was imminent. There were at this time no intervals of consciousness, and one convulsion followed another so rapidly that the face never lost the livid hue produced by the laryngeal spasm. Chloroform could not be given, as it seemed to increase the spasmodic action of the laryngeal muscles, and its vapour did not reach the lungs in amount sufficient to cause cessation of convulsion. Bleeding was not attempted on account of the bloodless appearance of the patient. I

found that the os was dilating, and being very thin and extensible I introduced first the right index finger within it, and then the palmar surface of this finger being towards the sacrum of the patient, I passed the left index along the back of the right with its palmar surface towards the pubis, the left hand passing over the right for this purpose. The tip of the left index was then insinuated within the os, and the two fingers laid exactly back to back. By slight separation of the terminal phalanges I could now dilate the os at pleasure. It will be noticed that the dilating pressure thus made is not a direct outwards one against the edge of the os, and which would crush and injure it, but it is downwards and outwards, for the finger tips are hooked within the os, and the dilatation thus very closely resembles the natural one.

It is, moreover, made by a soft substance, and any bruise or injury of the parts is the fault of the operator, for his instrument is sensitive, and enables him to gauge accurately the amount of dilating force advisable. The amount of force thus at command is, of course, much in excess of what is required, but this is no argument against a moderate degree of pressure in such cases as this, conjoined with extreme care and gentleness. The only objection which I can see to this mode of dilatation and to similar ones which I have still to explain, is that the pressure is not circular; but it is easy, by a slight change in the position of the fingers, to vary the direction of the pressure, so that the whole circumference of the part to be dilated is more or less acted on. During this time the patient was in constant and sometimes violent movement; when the movements were more than usual the fingers were withdrawn, but there was no time to lose, as her death was momentarily expected. I was surprised at the rapidity and ease with which the os expanded. The dilating process was not used continuously but intermittingly, so as to resemble the natural pains. When the os became as large as a five-shilling piece, I began to dilate with three fingers instead of two, the hands then not being crossed, but two

fingers of the left hand, having their palmar surfaces pointing towards the sacrum of the patient, and the index of the right, back to back with them, its palmar surface pointing anteriorly. The os soon became more widely dilated, so the first two fingers of each hand were employed in the same relative position as before. It may be supposed that this mode of using the fingers would be awkward to the operator, but this is not so if he possesses ordinary manipulative skill, and his fingers are not unduly large.

In this case the os was very rapidly and easily dilated to the size of the rim of a large teacup, when the long forceps were applied and the patient delivered of a dead child of small size, evidently not quite at the full time.

The whole process, from commencement of dilatation to delivery of the child, occupied less than an hour.

After delivery the convulsions became separated by more distinct intervals, and the administration of chloroform became practicable, the respiration being sometimes almost natural. The convulsions were kept off by chloroform for twelve hours, when they ceased spontaneously. Recovery gradually followed, no bad symptoms of any kind occurring, and the patient is now pregnant for the second time. With regard to the use of four fingers, *i.e.* the first two of each hand, I found the advantage to be that the posterior margin of the os could be reached by the left digits, whilst the right at a rather lower level were inserted within the anterior edge. Of course it is obvious that such a process as this can only be defended on account of its being actually found from experience to be not injurious, and I can most sincerely say that in the cases in which I have employed it, all of which, as they are not numerous, I shall relate, in only one has anything at all approaching suspicion of mischief occurred.

Case 2 was the wife of a dissenting minister. Primipara. No œdema of the legs, and near the full term of gestation. I called upon her, as requested by her

husband, found her apparently in excellent health but thought her nervous and excitable. The same night she began in puerperal convulsions; they were, however, separated by intervals sufficient to allow of free respiration. She was half unconscious in the intervals between the convulsions and unable to answer any question, but I soon noticed that each fit was synchronous with what appeared to be a labour pain.

Towards noon the next day she began to be in danger, and I then assisted dilatation of the os the same as in the last case. The os at this time was the size of a florin and very thin and dilatable, and after it had reached the size of the rim of a small teacup the pains came on regularly and naturally, so that I interfered no further, but confined my attention to giving chloroform. The labour was concluded naturally and the child was living and did well. Chloroform was given for many hours after the labour by the husband of the patient, as it was found easy to stop each fit by a very small amount of chloroform.

The patient recovered well and has been in excellent health up to the present time. The advantage gained by the digital dilatation was a shortening of the labour by several hours, and as after delivery the convulsions became much less severe and quite controlled by chloroform, I think the risk of the case was much diminished.

Case 3.—Mrs. T— was not in good health before labour commenced of her sixth child. She was very stout and accustomed to take hardly any out-of-door exercise. Pains began on a Friday, probably not true labour pains, for they occasionally passed off for several hours, and real labour did not begin till the following Wednesday. During these five days but little food was taken and she had hardly any sleep. On the Wednesday morning I found the os the size of a shilling; by six o'clock it was only the size of half-a-crown, and the patient was very weary. I ruptured the membranes, thinking excess of liquor amnii might be the cause of the slowness of the case. By eleven

o'clock, no further advance worth mentioning having been made, and the pains being very feeble, I dilated a little with three fingers, but found the resistance was a ring of muscular fibre about an inch within the os. This yielded at once to a little gentle pressure and the os having been a little dilated nothing further was done for half an hour, when more dilatation was effected in aid of the pains, which were now increasing in strength and frequency. The rest of the case was completed naturally and rapidly; there were twins, and of course this partly explained the tediousness of the first stage of labour. Mother and children did well, but finding that five months afterwards she was menstruating freely, and had done so two or three times, I examined and found the uterus enlarged, measuring three and a quarter inches internally, and with one little spot of erosion. This has been successfully treated by ergot internally, Dr. Wynn Williams' solution of iodine locally, and a momentary cold bath every morning, with quinine three times a day. This is the only case in which any uterine affection followed a labour in which I had employed digital dilatation, but it cannot in any degree be traced to this; it was an ordinary subinvolution.

Case 4.—Mrs. F— was in labour of her sixth child; the waters had broken early and the head of the child failed to dilate the soft and very thick os uteri, but with every pain carried it down, and became jammed in the rather narrow inlet of the pelvis, The pains, although good, thus produced little result, so I used the two fingers of each hand to dilate the os, and the dilatation effected was most satisfactory, so that I was enabled to deliver her by the long forceps without much difficulty. Delivery was indeed effected "in a few minutes," as my notes made at the time tell me. It should be noted that this case much resembles the unfortunate one with the relation of which I commenced this paper, but the ease of delivery and the result were very different. This patient has been in excellent

health during the fourteen months which have elapsed since her child was born.

CASE 5.—Primipara. Os dilated very slowly in spite of the frequency of the pains, which were indeed too rapid and too strong for the early stage of labour. I should in such a case have ordinarily given chloroform for a few minutes, but instead tried digital dilatation. 11 a.m., os was the size of a florin, hard and unyielding, pains strong and recurring every three minutes. Dilated with two index fingers very carefully and gently every quarter of an hour; continued this until 1.30, using when necessary three fingers. After this I interfered no further. By 2 p.m. the os was fully dilated and membranes unruptured; labour concluded safely at 3. The child was brought to my house by its grandmother at the age of three months, and she reported her daughter as being in good health.

These are the cases in which I have employed this method of dilatation; they have all occurred during the last two years, during which I have, partly by the aid of an excellent assistant, attended more than four hundred cases, so that it will be seen it has not been employed needlessly or simply for the purpose of experiment.

It may be expected that if this plan be attempted in cases which do not require it and only to save the time of the accoucheur, that the patient would complain of the interference, but in cases where the patient is herself conscious of needing some assistance from the length of the case or from a feeling of exhaustion, any assistance will be welcome. Of course the utmost gentleness and care are necessary, and a good deal of the manipulative dexterity so necessary in our branch of the profession, but with these, and by choosing only those cases really requiring aid of this kind, I am convinced that only good will result.

Whether my plan is new or not I do not know, but I am unable to find it referred to by any writer on midwifery, and I judge from its not being mentioned in a very able

and interesting article with the same title as mine, by Dr. Stevenson, of Aberdeen, published in the 'Obstetrical Journal' for August, that if it is not new, it is at least not known.

I have very little doubt, however, that it has occurred to some member of this Society, and I know one gentleman, Mr. Ford, of Harrogate, who tells me has employed it. My feeling is that it supplies a want in midwifery and had it occurred to me earlier my little patient with the depressed parietal bone would probably have been living at the present time.

The PRESIDENT thought the indiscriminate use of the hand to effect dilatation might lead to harm. He thought the administration of chloral would often favour dilatation. When the anterior lip is wedged between the head and pubes it is better to push it up.

Dr. BARNES concurred in the President's opinion that this paper was of great clinical interest. Two questions were presented for discussion. First, the method of forcible dilatation of the cervix uteri by the finger; second, the treatment of puerperal convulsions during labour. These questions must be considered separately. As to the first, he did not propose to offer an apology for his hydrostatic bags. He would simply observe that where you could introduce two fingers, or even one, there was no difficulty in introducing the bags, and that it was easy to use them in cases where the cervix was still high in the pelvis, when it must be extremely difficult, if not impossible, to use two hands in dilating. The gentle uniform dilatation by water was moreover much to be preferred to the unequal force exerted by the fingers. Another objection to the fingers was that they were likely to get cramped and tired, and then the delicate sense of the resistance to be overcome and of the force to use would be impaired. If the bags sometimes disappointed it was because defective ones were used. Some instrument makers did not scruple to sell bags against which he had protested. Then there was the question, a very anxious one with him, whether precipitate delivery in puerperal convulsions were really urgent and good practice. He at one time acted upon the accepted rule that it was. But he had seen results which led him to doubt. The nervous and vascular systems were in a state of extreme tension. Any irritation now applied might provoke convulsion. Mere examination by finger would do it; even passing a catheter. It was desirable to avoid manipulation and operation as much as possible, and anything done should be done under anæsthesia;

and here he might remark incidentally, in reference to the President's remark, that chloral was not mentioned by Dr. Braithwaite, that Dr. Braithwaite had used chloroform, which was a good equivalent, or even better. In the use of this Dr. Braithwaite's practice was entirely judicious. Without it he felt convinced that his method of dilating the cervix would have been attended by disaster. The method he preferred in puerperal convulsions was to proceed gently and cautiously, avoiding manipulation as much as possible; using chloroform freely; puncturing the membranes early, so as to lessen the tension of the uterus and the general vascular and nervous tensions; then to dilate gently by the hydrostatic bags if the cervix did not expand spontaneously; and to accelerate delivery by forceps or turning if the labour flagged unduly.

Dr PRIESTLEY would not venture to decide which was the best method of dilatation in the circumstances proposed, but he should be glad to know, as a practical point in the use of Barnes's dilators, how Dr. Barnes prevented their extrusion when placed *in sitû*, as he had found them apt to be expelled with the occurrence of each uterine pain.

Dr. EDIS concurred with the observations of Dr. Barnes in thinking that, although under exceptional circumstance the plan recommended by Dr. Braithwaite in his paper might be advisable, it was not one to be resorted to as a general rule, hydrostatic pressure being far safer, more especially when the os uteri was high up in the pelvis. Dr. Edis had employed digital dilatation successfully in many cases where Barnes's bags were not at hand, or were not tolerated. He mentioned one case of an excessively nervous lady pregnant with twins, her fifth confinement, where the labour was very tedious, partly from the feebleness of the pains from undue distension of the uterus and partly from rigidity of the os uteri itself, where any interference in the way of dilating by means of india-rubber bags was simply interdicted; but digital dilatation was successful in opening up the os uteri and bringing the labour to a much more speedy termination than would otherwise have been the case.

Dr. AVELING said that a great drawback to the hydrostatic dilator was its being made of a perishable material. The life of vulcanised india rubber was short, and if the bags were kept for years they were apt to be found rotten when required for use. He considered dilatation by the hand to be safe when skilfully performed, and preferable to any other method with which he was acquainted.

MARCH 8TH, 1879.

WILLIAM S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—50 Fellows and 7 visitors.

Books were presented by Dr. Hoggan, Dr. Mundé, Dr. W. L. Richardson, Prof. C. Schroeder, Prof. Rizzoli, Dr. Verardini, and Mr. H. C. Wood.

The following gentlemen were admitted Fellows of the Society :—N. H. K. Kane, M.D. (Dublin); Jas. A. Mansell Moullin, M.D.; and James Inkson, M.D. (Chatham).

And the following were declared admitted :—Hugh Rd. Ker, L.R.C.P. Ed. (Old Hill, Dudley); Geo. Herbert Wade, M.R.C.P. (Chiselhurst); and Lionel A. Weatherly, M.D. (Portishead).

The following gentlemen were proposed for election :—J. Storrs Brookfield, M.D.; Charles James Campbell, M.D. (Paris); John T. Gardner, M.R.C.S. (Ilfracombe); Wm. Richard Grove, M.D. (St. Ives, Huntingdonshire); Geo. Rd. Turner Phillips, M.R.C.S.; Richard Rendle, F.R.C.S. (Brisbane, Queensland); Geo. Slight, M.D.; and John Sutcliffe, M.R.C.S.

Dr. GALABIN showed a Greenhalgh's pessary which had been removed with great difficulty from the vagina. It had been introduced four years before for the cure of prolapse in a woman aged about sixty, and had remained without attention since. One lower corner was found

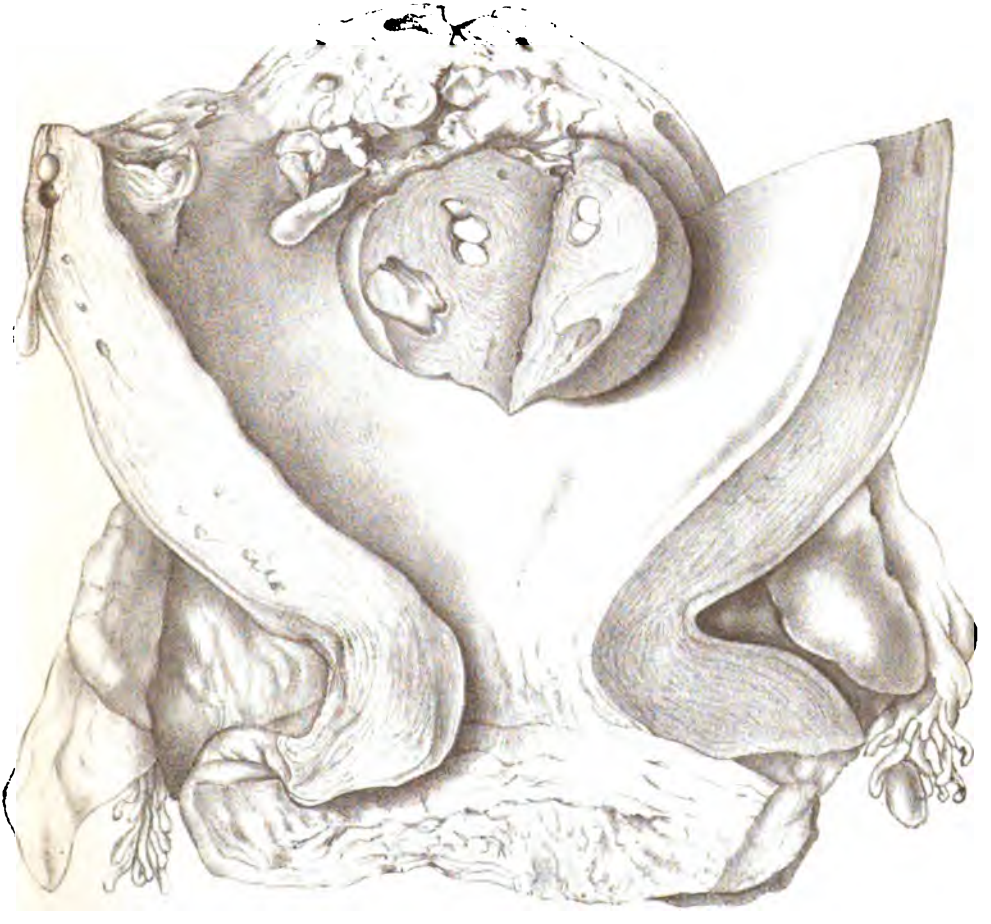
presenting at the vulva, the other had ulcerated deeply into the vaginal wall somewhat posteriorly, and had almost pierced the rectal mucous membrane. Ether was administered, and attempts were made in vain, first to release the point by pressure from the rectum, and next to divide the pessary by bone forceps. Eventually the cross-bars were cut, and the pessary bent until, with difficulty, it was turned sideways and withdrawn by a kind of evolution, the embedded end being extracted last. The shape of the pessary, as now seen, illustrated the mechanism which led to the special danger of producing ulceration to which this pessary was liable. The india rubber, becoming much softened in the vagina, fell away from the points and left them unsupported, although not actually laid bare. If the mucous membrane were once penetrated, the pessary became like a gigantic fish-hook, and any attempt at direct extraction only buried it more deeply. In a similar case he had found both ends of the pessary embedded, and had failed to divide it with bone forceps. It proved necessary to file it through at the summit of the vagina.

The PRESIDENT showed a metallic-stem pessary with an external support, which had been removed from a patient who had worn it for five years and a half.

Dr. BRAXTON HICKS remarked that, in pessaries, care should be taken to have the rings made as stout as was possible consistent with lightness, the bearings being less sharp, and also the ends, as in the pessary under notice, bent downwards at the ends. He had noticed granulations only in the slender kind.

Dr. GODSON remarked that it was not uncommon to find one of the angles of a Greenhalgh's pessary embedded in the vaginal wall within a week of its introduction. The fault lay in the pubic end of the pessary being insufficiently broad to prevent its turning sideways. A well-fitting pessary of this kind might be worn for many months without fear of injury. It required considerable experience to shape a pessary to a vagina.

Dr. EDIS referred to a similar case he had brought before the notice of the Society, where a Hodge's pessary, firmly embedded in the posterior vaginal cul-de-sac, had been extracted by nipping through the pessary with a pair of strong bone forceps, and then rotating the instrument out, so as to avoid tearing through the band



of tissue. We could not be too careful in impressing upon patients the necessity of presenting themselves within a few days after the insertion of the pessary in order that it might be ascertained whether it fitted properly, and again, of reporting themselves at regular intervals as long as they wore it.

Dr. BARNES observed that two conditions were essential in the design of pessaries to avoid incarceration. One was that the instrument should have no angles and be perfectly smooth; the other, that it should not stretch the vagina. A good pessary would be lightly embraced by the vagina and work in harmony with the natural movements of respiration. He had had to cut out Zwanke's pessary, a ring of new tissue having grown through the rings of the instrument.

Dr. CORY exhibited a uterus from a case whose clinical history he briefly related.

"E. D—, æt. 40, was admitted into St. Thomas's Hospital on the 19th December, 1878. She had had eight children; no miscarriage. Her youngest child was about eighteen months old. She suckled this child for eleven months. Nine months after the confinement menstruation commenced again, and continued regularly until June, 1879, when it ceased. As she shortly after this began to enlarge she considered herself pregnant.

"On September 11th, when, as she supposed, about four months gone, she suddenly lost a considerable quantity of blood, without pain, per vaginam. During the next three weeks she had occasional losses, and at the end of this time labour pains came on, and a large mass passed from her, which, she said, resembled globules of water or a bunch of grapes.

"From this time until December, 1878, she suffered much from a sanious discharge, and occasionally from hæmorrhage.

"When I first saw her she was quite anæmic in appearance from the continual discharge. The uterus was large, the sound passing three inches and a quarter, and the cervix was very patent. She was recommended to come into the hospital. While in the hospital the discharge continued, notwithstanding general treatment.

"On the 11th of January, 1879, sharp hæmorrhage took place, and the resident accoucheur considered her condition so serious that he determined to check the bleeding at once; with this end in view he injected, by means of an ordinary Higginson's syringe and uterine tube, a mixture of perchloride of iron and water in the proportion of 1 to 10. The tube, which had a maximum diameter of 12 mm., was readily introduced into the uterus, the cervix being very open.

"The bulb of the syringe held an ounce and a quarter of fluid.

"After the second bulbful had been injected the woman, who all along had been lying on her side, became collapsed, and died suddenly, there being barely time to remove the uterine tube.

"At the post-mortem examination a small quantity of darkish fluid, mixed with black flakes, was found in the recto-vaginal pouch. The fluid was removed by a glass pipette, and found to contain a large proportion of iron, so much so that, by simply boiling and filtering to separate the albumen, and adding ammonia, the hydrated oxide of iron was precipitated, the filtrate also became instantly blue on the addition of ferrocyanide of potassium. The black flakes and the darkening of the fluid was due to the presence of sulphide of iron formed after death.

"The pathological condition of the uterus is one of great interest. On the anterior wall there is a rounded tumour about an inch and a quarter in diameter, and on the cut surface of this may be seen the abnormal villi of the chorion still occupying the venous sinuses and extending into them nearly to the peritoneal surface of the uterus. The specimen clearly shows the futility of trying to remove such growths as this—a remark for which I am indebted to Dr. Barnes. The fluid seems to have entered by the left Fallopian tube, as this one was slightly darker when first seen, but the difference was even then very slight.

"In the 'British Medical Journal' for 1st March,

p. 336, there is a case reported of death from the vaginal injection of acetate of lead. In this case the Fallopian tubes are said to have been very narrow, and did not present any sediment, while the broad ligament in the neighbourhood of the fimbria and the peritoneal surface of both ovaries were covered with numerous black flakes of various sizes. This sediment, on being chemically examined, was found to consist of sulphide of lead.

"The sulphur in these cases is probably derived from the decomposition of the albumen contained in the peritoneal fluid, which the mucus moistening the Fallopian tube does not contain; hence these show only slight traces of the passage of the solutions of mineral salts along them."

Dr. Braxton Hicks asked Dr. Cory whether the fluid injected had returned before the second injection.

Dr. Cory said that the fluid was seen and heard to trickle into the bed-pan during the injection of the solution of perchloride of iron, and that the quantity of fluid found in the bed-pan was afterwards removed and amounted to a little over two ounces. The bulb of the syringe, as before stated, held an ounce and a quarter.

Dr. Hicks observed that doubtless it was the astringent action of the injection which had caused the os uteri and cervix to contract on the pipe, thus preventing the exit of the remainder; this being so, the patency of the canal cannot be relied on alone.

Dr. Cory, in reply to the President, said that, although there appeared at first to have been room for the free exit of the fluid, yet he thought there may have been some muscular contraction of the cervical walls upon the tube of the syringe, which caused a certain amount of obstruction to the exit of the fluid from the second bulbful.

Dr Barnes said the mechanism of the escape into the peritoneum of fluids injected into the uterus seemed to be that the fluid, injected with some force, excited contraction of the uterus, and this contraction would impel the fluid towards the three openings. Some would reflow by the os uteri, whilst some might be propelled along a Fallopian tube. He wished to call attention to a mode he had before brought under the notice of the Society of applying perchloride of iron in cases like this, by swabbing, or by using a tube perforated at the end, containing sponges saturated with the styptic solution, and which oozed out under the pressure of a piston. In Dr. Cory's case there was evidence of

shock; it might be presumed from the iron injection being used that the patient's condition was already critical. That the mere contact of iron solution with the peritoneum was not necessarily fatal or dangerous was certain. He had, on more than one occasion, swabbed large surfaces of the peritoneum to restrain hæmorrhage from adhesions during ovariotomy, the patients recovering.

Dr. BRUNTON suggested the use of a cannula for injecting solution of iron into the uterus, made after the manner of the double male catheter in common use for washing out the male bladder. By the employment of such a combination of tubes the superfluous iron solution thereby could be run off, and not retained in utero to the danger of the patient.

Dr. AVELING said that such an apparatus would be useless, as the clots would stop up the outlet.

Dr. EDIS observed that such an instrument as Dr. Brunton suggested existed, and had been tried, but in cases such as those under discussion, the eye of the catheter was apt to get blocked up by clots, and so the escape of fluid was prevented.

Dr. MATTHEWS DUNCAN exhibited two specimens of pyometra. In the first and smaller the collection was caused by atresia of the cervix. In the second and greatly larger the cervix uteri was widely open. The mechanism of the dilatation of the cavity of the body of the uterus in this latter case is of great pathological interest. Analogous dilatations can be adduced, and such may contribute to the elucidation of the mechanism. On this subject he hoped, some day, to lay his views before the Society.

The first specimen is from an old woman, who died in great suffering, supposed to arise entirely from the cancer of the neck of the womb with which she was affected. After death, besides the medullary cancer of the neck and adjoining parts, there was found a uterus dilated so as to have a globular cavity of about two inches in diameter, enclosed by a wall of about a line in thickness. This wall was lined internally with a pyogenic membrane, and enclosed a thin purulent fluid. There was acquired atresia of the cervix.

The second specimen is from a sterile woman, æt. 60, who had been married fourteen years. Nearly three

years before her death she began to have a copious, thin, purulent, and occasionally blood-stained discharge, which proceeded from the interior of the uterus and which never ceased. She suffered daily from long attacks of intense agony, which had all the characters of spasmodic pain. The disease was regarded during life as one of intra-uterine ulceration, probably malignant. This disease is not very rare, although it has been the subject of little description. In some cases there is great pain, as in this one; in others there is none. The remarkable expansion of the uterus has been already alluded to. The nature of the disease is not yet satisfactorily made out. He had lately witnessed the dissection of a case that proved fatal under his care. Besides the ulcerated state of the slightly enlarged body of the uterus there was found only slight enlargement and induration of some lumbar glands. In Dr. Godson's case, which was laid before the Society a few meetings ago, nothing was found beyond the ulceration of a uterus only slightly enlarged. In both of these cases the examination was only macroscopic. In the present instance post-mortem examination was made by Dr. Ormerod and Dr. Thin. The result is, as follows, from the pen of Dr. Ormerod; and it will be observed that, however justifiable it may be to call the disease malignant on clinical grounds, there is nothing cancerous found on examination.

"*Post-mortem examination made about eighteen hours after death.*—Only the abdomen was opened. The body was fairly nourished; there was plenty of fat in the abdominal walls. No fluid in peritoneal cavity; no sign of general peritonitis. The omentum reached below the umbilicus, and was adherent in one small place to the front wall of the uterus. At the level of the umbilicus was a tumour, the size of a small orange (a subperitoneal fibroid of the uterus), attached to the upper and anterior wall of the uterus, from which it was separated by a well-marked neck. Behind and below this, lay the uterus, about the size of a man's fist, semi-fluctuating to the touch; pressure on it produced a discharge of dark fetid stuff from

the vagina. The uterus was not adherent to any organ except the omentum (as mentioned above) and the bladder (to be mentioned afterwards). The uterus, ovaries, vagina, bladder, and rectum were removed *en masse*. The remainder of the pelvis appeared healthy; the lumbar glands were not enlarged. The liver (examined *in situ*) was fatty, but not otherwise diseased. The right kidney was healthy.

"The condition of the organs removed was as follows:—The rectum was healthy throughout; there was no communication between it and the uterus. The bladder was also healthy, neither was there any communication from it. The vagina was healthy; the os uteri was large but distinguishable; and the mucous membrane remained upon it. The uterus was distended with thick fetid stuff, of a dark purplish colour, and about the consistence of porridge; the mucous membrane throughout was reduced to gangrenous shreds; at the upper part of the uterus (in the neighbourhood of the subperitoneal fibroid) there remained firm substance between the shreddy internal lining and the peritoneum; in other parts the muscular wall had almost disappeared. Between the upper part of the bladder (rather to the right of the middle line) and the uterus were adhesions enclosing a cavity filled with same fetid stuff as filled the uterus, mixed with a very little pus. This cavity communicated with the uterine cavity, the uterine walls being here completely broken down. The subperitoneal tumour was nodulated on its surface, covered with smooth peritoneum, firm, nowhere breaking down, presenting on section the ordinary appearance of a fibrous tumour, and apparently in no way connected with the disease of the interior of the uterus.

"Sections of the uterus were examined microscopically (February 19th) by Dr. Thin and myself. They consisted of small rounded cells, not differing materially from pus-cells in appearance, aggregated together for the most part; but in some parts of the sections uterine muscular fibres could be seen, which the cells appeared to infiltrate. There was no definite boundary line between the

two, the cells passing up between the fibres. At the free edge of one section two columnar cells (remnants of the uterine mucous membrane) were seen, but this was all. In order to remove all doubt as to the character of the cells, some pieces of the uterus were teased out in glycerin so as to isolate the cells. These were then seen to be pus-cells, and not epithelial."

Dr. BRAXTON HICKS showed, for Dr. Ogston, junr., a unilateral uterus and kidney (solitary) with two ureters.

The *uterus* has only its right half developed; its left half, left Fallopian tube, left ovary, and left broad ligament being wanting. The *right kidney* has two ureters, the upper one springing from a cyst with partly bony walls, and terminating in the usual place on the left side of the bladder; it is imperforate. The lower ureter ran the usual course to the right side of the bladder. The kidney lay completely to the right side of the spinal column. There was no trace of a left kidney, but the left supra-renal capsule was in its usual place, and the right one lay at the upper end of the double kidney. The body otherwise, the pelvis, and the external genitals were normally developed.

Dr. GODSON showed a polypus which he had recently removed from a woman, æt. 60, who was under his care in St. Bartholomew's Hospital. He first saw her a year ago, when she complained of bleeding from the vagina. The uterus and vagina were found healthy. There had been no recurrence of the hæmorrhage until a week since, when the patient again presented herself. On examination a tumour, the size of a walnut, was found at the orifice of the vagina; it had at first sight the aspect of a firm fibrinous clot; it was discovered, however, to protrude from the urethra, and to be connected by a narrow pedicle with the fundus of the bladder, which organ it partially inverted. Dr. Godson applied a catgut ligature and separated it by means of scissors. A microscopical examination showed

it to consist of fibro-cellular tissue, with a few muscular fibres, covered over with mucous membrane. Such polypi were of extreme rarity, and it was fortunate that the subject of it was a woman.

NOTES ON A FŒTUS.

By H. S. Wilson, M.D.,

DEMONSTRATOR OF PRACTICAL ANATOMY AT THE LONDON HOSPITAL MEDICAL COLLEGE.

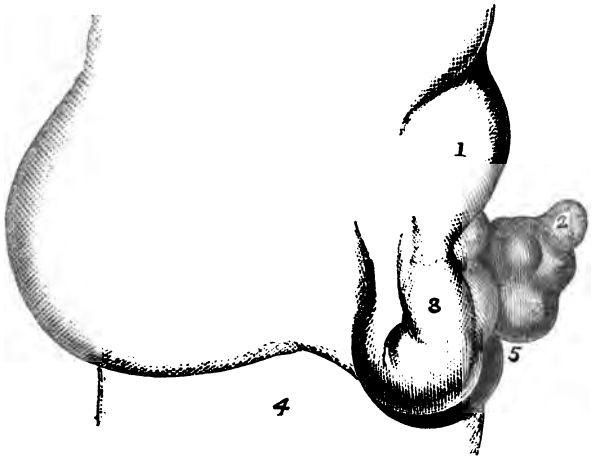
(Communicated by Dr. Herman.)

The fœtus affording the following observations was kindly sent to me by Dr. Herman.

It was nineteen inches long and well nourished. The finger- and toe-nails were well developed. The lower femoral epiphysis presented a centre of ossification. The lips and the buccal cavity, except the portion of the gums covering the margins of the alveolar processes, were normal. The gum of the upper jaw presented two small tooth-like lappets hanging down from the region of the first incisors; they were separated by a ridge which was continuous with the labial frænum. From the region of the canine tooth there was another small narrow prolongation of the gum, passing obliquely inwards towards the centre lappets. The lower gum projected along the whole extent of the alveolar process in the form of a pliant fringe; having an irregular free margin; this fringe was very thin over the regions of the incisors, but became thicker and less marked beyond this point. There was scarcely any lingual frænum.

The external generative organs assumed the male type. The labia majora were large and prominent, each measuring $\frac{9}{8}$ by $\frac{5}{8}$ inch. They were somewhat pendant and scrotum-like. The whole of the external surface, and the inner aspect of the horizontal pendant portions had all the

Fig. 1.



Profile view of external generative organs, the right thigh being left out. 1. Mons veneris. 2. Penis-like hypertrophy of the upper preputial subdivision of the labia minora. 3. Right labium majus. 4. Left thigh. 5. Left labium majus.

characters of skin. The rest of the inner aspect was skin, but for a short distance along the free margin beyond it passed rapidly into the smoothness of mucous membrane.

This mucous portion of the labia majora was easily distinguished by the openings of the submucous glands becoming large and conspicuous; these openings were irregular in distribution, though, on the whole, more sparsely scattered towards the labia minora. They are all directed obliquely outwards towards the labial margin. On dissecting the labia a dartos tunic was easily distinguished, separated from the integument by a quantity of fat, most abundant at the lower horizontal portion. The anterior commissure was marked, and overhung the preputial covering of the clitoris. The posterior was not distinct, as each labial margin became gradually lost on the integument in a direction towards the anus.

The clitoris, when dissected out and put on the stretch,

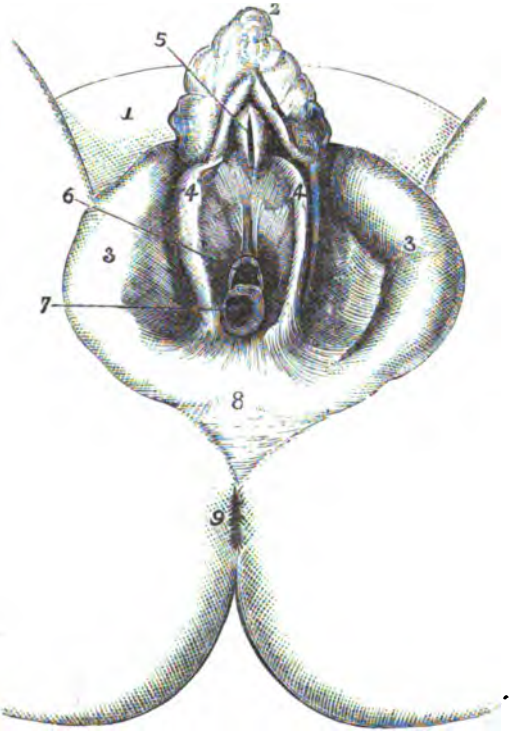
measured $\frac{7}{8}$ inch from subpubic arch to its extremity. The glans, $\frac{1}{8}$ inch long, was closely covered above and laterally by the prepuce, its inferior aspect and its inferior frœna being continuous with the vestibule.

The labia minora seemed to be entirely taken up in the formation of an extensive prepuce for the clitoris. This projected $\frac{6}{8}$ inch beyond the labia majora and anterior commissure, presenting in this extent all the characters of skin, except that portion overlapping the glans clitoridis, which was covered with mucous membrane. In addition to length, the prepuce possessed $1\frac{1}{4}$ inch of circumference, and passed downwards and outwards on each side to be continuous with the labia majora. The labia minora thus appeared like narrow, thin, mucous appendages to the inferior margins of the prepuce. They had conspicuous superior margins, especially on the left side, and this marked the usual point of division of the lip into its superior and inferior folds. They were entirely concealed within the labia majora. The portion of the prepuce covered by the labia majora assumed more the character of mucous membrane than of skin. The numerous crypts containing the openings of the sebaceous glands were large and stretched out, having the appearance of an elongated meshwork enclosing honeycomb-like cells. The glandular orifices were directed obliquely towards the glans clitoridis. Towards the line of junction between skin and mucous membrane the walls of the crypts subsided into rugæ having papilliform projections on them. The prepuce contained in its substance unstriped muscular and elastic tissue. The small mucous folds of the nymphæ seemed to consist only of connective tissue and a few vessels.

The hymen was annular and very protuberant or pouting. No vaginal orifice could be found, but the whole of its anterior aspect presented a great number of fossæ-like openings, variable in size and irregularly scattered. These fossæ-like openings led into cavities having different depths, and whose walls were pierced by a number of very small foramina. Several attempts were made, with the

aid of a dissecting microscope, to trace these foramina, but without success. The circumference of the hymen, by

FIG. 2.



1. Abdominal wall foreshortened. 2. Prepuce of clitoris. 3, 3. Labia majora, entirely enclosing, 4, 4, Labia minora. 5. Glans clitoridis. 6. Meatus urinarius. 7. Impervious, button-like, protuberant hymen. 8. Lower extremities of labia majora. 9. Anus.

which it was continuous with the mucous surfaces of the vulva, was depressed, and presented radiating folds or rugæ with fossæ between. The deepest of these fossæ were on either side of the meatus urinarius.

The meatus urinarius was large and distinct. It held the usual position immediately above the hymen. A description of the urethra will be found with the bladder.

The fourchette was not well marked.

On opening the abdomen the uterus was found to be bicornuous. The two cornua were very conspicuous, lying high in the pelvis, one on each side of the rectum. Nothing definite could be felt lower down, the rectum spreading out and appearing as if resting in front of them. Each cornu consisted of two portions, a horizontal, lower, ½ inch in length and breadth, and a vertical upper, or terminal, ½ inch by ⅜ inch. The horizontal portion was bound to the lateral wall of the true pelvis by the peritoneum, which covered its inner aspect, and became parietal at its upper and lower borders. The upper border was on a level with the brim of the pelvis. Towards its posterior extremity a fold of its peritoneal covering, best marked on the right, passed inwards, and was continuous with that covering the rectum. The vertical portion curved upwards, forming almost a right angle with the horizontal portion. Its free extremity was bluntly pointed where continuous with the Fallopian tube. It reached as high as the iliac crest, and nearly as far forwards as the anterior superior spine, more so on the right side.

The ligament of the ovary, very short and imperfectly marked, and the round ligament of the uterus, had the usual relations to the Fallopian tube at their origins.

The whole of the vertical portion was covered by peritoneum, except the posterior border, to which the broad ligament was attached. The inferior extremity of this portion rested against the hypogastric artery. Owing to the vertical direction of this part of the cornu, each Fallopian tube ascended in its course, occupying the usual position in the fold of the broad ligament, and having the ovary parallel to it on its inner side. Each tube was about 1¼ inch in length, and had two pedicellate hydatids attached to its fimbriated extremity.

The ovaries were long, narrow, and fissured into lobe-like divisions. Between them and the Fallopian tubes, near their upper ends, a mass of converging lines were

FIG. 3.

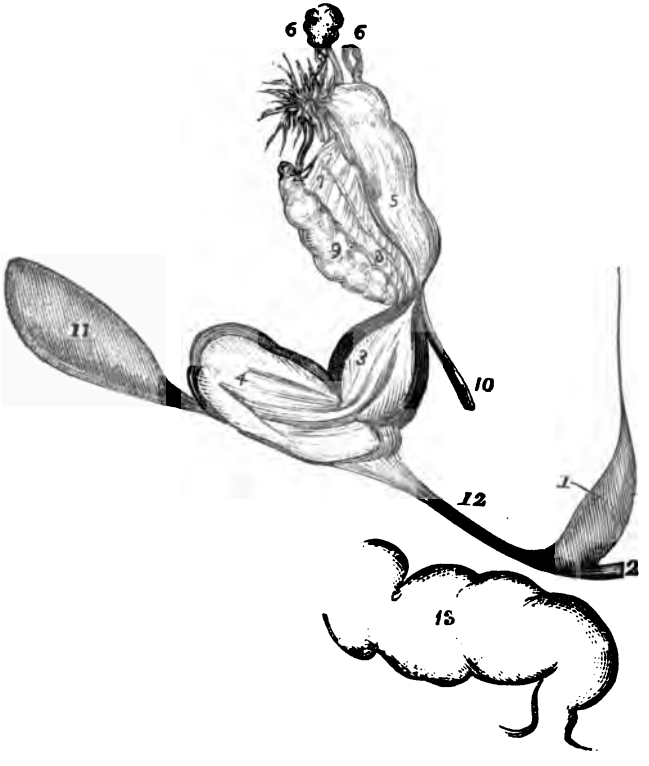


Diagram showing arrangement of genito-urinary organs. 1. Bladder passing upwards into urachus and backwards into pedicle (12). 2. Urethra and meatus urinarius. 3. Vertical portion of uterine cornu (right). 4. Horizontal portion of uterine cornu. Between them is seen a constriction, and the mucous membrane is represented in longitudinal folds. 5. Fallopian tube. 6, 6. Hydatids. 7. Part of broad ligament containing remains of Wolffian body. 8. Remains of Wolffian duct. 9. Ovary. 10. Round ligament of uterus. 11. Cysts connected with posterior end of horizontal portion of uterus. 13. Pedicle connecting anterior end of horizontal portion of uterus with the base of the bladder.

seen, from which point a cord descended towards the uterine attachment of the round ligament. They seemed like remnants of par-ovaria and Wolffian ducts. On the left side there was a small disc-like cyst in the broad ligament near the upper end of the ovary.

By cutting through the left sacro-iliac synchondrosis and the symphysis pubis, and then carrying the incision along the left half of the pubic arch as far as the tuber ischii, the left os innominatum was easily turned back and a full lateral view of the pelvic contents displayed.

Each uterine cornu was found to pass abruptly into a very narrow riband of unstriped muscle at the anterior extremity of its horizontal portion. These riband-like pedicles descended obliquely downwards and forwards to the base of the bladder, and there blended with each other and with the bladder. From this junction the whole mass passed forwards to the annular hymen and urethral opening. After careful dissection, longitudinally and transversely, no trace of a tube could be found, so that it was impossible to say if the lower portion of the mass represented an obliterated vagina or otherwise. The pedicles were also solid. Connected with the posterior extremity of the horizontal part of each cornu, and passing upwards and backwards along the sacral alæ as far as the body of the last lumbar vertebra, was an elongated cyst. That on the right side had thicker walls, and had a smaller cyst attached to it by a long slender stalk. These cysts were lined by a smooth membrane, and contained grumous fluid. Nothing definite beyond connective and elastic fibrous tissue could be made out of the structure of its walls. Its fibrous tissue, however, was distinctly continuous with the uterine walls. The right cornu had thicker walls than the left. The thickest portion of the walls corresponded with the anterior extremity of the horizontal portion, and the thinnest with the inferior aspect of the same. This thin portion was most marked on the left side, where all the characters were more pronounced. The cavity of each cornu consisted of two

pouches, an upper and a lower, corresponding with its horizontal and vertical portions, and connected with each other by a constriction situated about the middle of the vertical. The upper pouch was continuous above with the Fallopian tube. Both were filled with a somewhat tenacious jelly-like mucus, rich in mucus-cells, and were lined by a distinct mucous membrane. The mucous membrane was thrown into four very prominent longitudinal folds. These folds commenced abruptly at an elevated surface a little above the thinned portion of the wall. Here they were broad, and were divided into three or four secondary laminæ, but they became narrower as they passed upwards, and ultimately subsided into the general surface beyond the constricted portion. Some smaller folds ran longitudinally between the larger, while others passed obliquely across, connecting these to each other at their lower end. The whole arrangement had the appearance of the arbor vitæ uterinus. No indentation internally marked the place of attachment of the pedicle externally.

The bladder presented a very small cavity, which passed a considerable distance along the urachus. It was quite empty. There were no ureters. About the regions of the usual openings of ureters there were two indentations corresponding with the points where the uterine pedicles blended with each other and with the bladder. That on the left side was traced for a short distance into the left pedicle. The urethra was quite patent. Its lining had some few longitudinal folds, and towards its orifice small openings could be seen, with a lens, directed forwards. They were apparently those of glands. Glandular-like cavities were also found in the vaginal portion of the united mass, situated just below this part of the urethra, and probably passing into these openings.

The rectum was capacious, normal, and partly filled with healthy meconium.

No kidneys were present, but in their region there were two large supra-renal bodies. They measured about

1½ inch by 1 inch, the right being longer, broader, and thicker than the left. They were more or less oval in shape as well as flattened, and each presented an indented groove on its superficial aspect running parallel to its outer border. The structure under the microscope presented the leading characters of a supra-renal body.

The right hepatic lobe was partly subdivided by a fissure running backwards from the anterior margin along its inferior aspect.

The stomach was vertical in its direction, its lesser curvature passing slightly to the left of, and almost parallel with, the mesial line, and its greater curvature bulging to the left side.

The other visceral peculiarities will be best understood under the description of the peritoneal arrangement.

The vascular supply to the viscera above described was, on the whole, normal. The supra-renal bodies received their arteries almost entirely from the phrenic branches of the abdominal aorta, and returned their blood, by comparatively large veins, into the ascending cava. The vein from the right opened very high up, beyond the point where the cava began to receive small hepatic veins. That from the left was much longer and received the left ovarian vein as well as a small veinlet from the connective tissue about the left renal region. The right ovarian vein opened into the cava about a ¼ of an inch below the level of the left supra-renal. Two small branches passed from the aorta about the level of the origins of the renal arteries. That on the right ended in the diaphragm, and that on the left in the mass of the semilunar ganglion. The aorta bifurcated opposite the second lumbar vertebra. The common iliacs divided at the usual level. Branches passed from them along the broad ligament to the Fallopian tubes and ovaries, while others were supplied to the cysts connected with the horizontal portions of the cornua. There were corresponding veins. The left common iliac gave off the sacra media, which, in the upper part of its course, supplied

the lower lumbar branches. There were several branches from the hypogastrics to the uterine cornua, the pedicles, and the bladder. The origin of the other visceral branches from the aorta occupied about the usual level. The ascending cava left the spine on its approach to the liver, and pushing the peritoneum before it made for itself a short imperfect mesentery. The large majority of the hepatic veins passed into it as one branch, joining it after it had emerged from a pons hepaticæ, and just before it perforated the diaphragm. This hepatic vein received the ductus venosus which branched off from the umbilical vein after it had supplied the left lobe.

The arrangement of the peritoneum was modified to suit a floating cæcum and ascending colon. The right free margin of the gastro-hepatic omentum extended considerably to the right in one direction along the gall-bladder, and passed downwards in another direction along the duodenum, as far as the hepatic flexure of the colon, being gradually lost on the ascending colon. The mesentery was continuous with the parietal peritoneum over the spine at one spot only, which corresponded with the last portion of the duodenum and with the inferior boundary of the foramen of Winslow. From this point the mesentery extended downwards to enclose the jejunum and ileum, and presented a right free margin, containing cæcum, vermiform appendix (by a secondary mesentery), and ascending colon. This free margin was continuous with the great omentum at the hepatic flexure of the colon. Owing to this free supply of peritoneal covering the first two portions of the duodenum were contained almost side by side in the anterior double layer of the great omentum, and the third portion, together with the head of the pancreas, in the posterior double layer of the same. It was doubtful where the pancreatic duct opened. It seemed to pierce the portion of duodenum where the second was continuous with the third division. The tail of the pancreas also floated, and was contained in the posterior double omental layer, close to the left border.

The lungs were solid, the heart healthy, and the thymic bodies, though peculiar in shape, normal.

Remarks.—This case seems to us extremely interesting, owing to the order, so to speak, which its abnormalities present. These point to a series of checks in developments dating apparently from the sixth to the twelfth week of uterine life. Taking the pelvic viscera first, there seems a remarkable distinct parallelism in the development of the internal and external organs of the urogenital system. The ovaries, we may say, are normal, and the upper extremities of the Müllerian ducts (the Fallopian tubes) equally so. But traced lower down the Müllerian ducts are apparently checked in their growth, and probably even atrophied. The united ducts (genital duct) becomes, in addition, blended with the urinary portion of the sinus (bladder). The rest of the vagino-uterine development is so modified that it is simply a matter of conjecture whether the pedicles are utero-vaginal elements or simply vaginal, or merely remnants of ureters. Again, the corniculate portion of the Müllerian ducts, by the development of its mucous lining, would lead us to infer that they each represented a complete uterus, from imperforate os to imperfect fundus. Comparing these conditions with the state of the external organs, we have appearances indicating a check a little beyond the period of sexual neutrality. The first tendency is distinctly to form a normal vulva to meet the requirements of an ovarian function, but the retrograde life of the Müllerian ducts modifies the further growth of these parts, and we have in consequence scrotal labia majora, imperfect labia minora, imperforate hymen, shortened urethra, and penis-like clitoris. In this we have an admirable example of the *pari passu* growth of the internal and external organs, and of the manner in which modification in the growth of the one set also alters the development of the other. The half skin and half mucous membrane nature of the prepuce also illustrates this. Again, the condition of the bladder is very instructive.

It is only a representation of what it ought to be, apparently owing to the entire absence of not only ureters, but also probably of kidneys. And here a careful examination of the parts and their relations to each other opens out several points for consideration. Are the uterine pedicles solely such, or is there also in them the remains of ureters? We find connected with each uterine cornu a well-defined cyst, similar on both sides. Are these cystic remains of kidneys, dragged down in the descent of ovaries, &c.? If so, this would, to a certain extent, have explained why we find the cavity of the bladder continuous for a short way with one of the pedicles, by assuming that the ureters were indistinguishable and yet blended with both uterus and pedicles. On the other hand, the presence of cystic kidneys might still be retained, and the opening of the pedicle into bladder be explained by considering the bladder to represent the uro-genital sinus, which has passing into it anteriorly an obliterated vulva portion of vagina, and has opening into it posteriorly the Müllerian ducts. The other, however, seems to us the more probable view of the two. The description of these cysts closely resembles that given by Dr. Matthews Duncan of kidneys found in a similarly deformed fœtus.* The position they hold is similar to that presented sometimes by horseshoe kidneys. The condition of these pelvic viscera further suggests the question as to how far the non-development of a pelvic viscus will affect the evolution of the others. In the case quoted above, and in another case described by the same author,† we have two grades of this type of malformation, commencing with an entire absence of the uro-genital system. Here the rectum and anus is normal and healthy, but there is what is equivalent to an entire absence of the urinary, with the presence of a greatly modified generative, system. These facts tend to the probability that an entire absence of

* 'Edin. Med. Journ.,' 1870, p. 164.

† Ibid., 1871, p. 937.

kidneys cannot occur without a more or less modified generative system.

It is curious to observe how the supra-renal bodies usurped the regions of the kidneys, so exactly occupying their positions as to be readily mistaken for them but for the flatness they presented when compared with the usual bulging of a fœtal kidney. The same law of adaptation seems borne out in the fact that the left supra-renal vein received the left ovarian.

The peritoneal arrangement further points to an arrest of development. Prof. Cleland, in two of his papers,* has pointed out this form of modification of the peritoneal distribution. The condition here may reasonably be explained by assuming that, though the large intestine with the mesocolon have travelled to the right and have taken their proper position below the liver, yet the cæcum and ascending colon have not descended and been fixed to the iliac fossa. As far as my experience goes, floating cæca are by no means uncommon, and, from a conversation I had with Dr. Chevers, it would seem that it is a condition decidedly favouring intussusception, for he quoted three cases which had come under his notice illustrative of this. The stomach, again, retains the position indicative of an earlier stage of development. I have seen this position of the stomach most marked in an adult female subject, who also possessed a one-lobed liver. This vertical stomach may, indeed, be considered one of the typical positions assumed by the gastric organ. It is also interesting to notice how even the duodenum participates in the great freedom of movement granted to the digestive canal through an abundant supply of peritoneum. Only a small portion of it is fixed to the abdominal wall, the rest is floating.

The appearance presented by the gums further indicate a checked development succeeded by a modified growth. Altogether, the more carefully we go over the anatomical facts just given the more instructive do we find the case

* 'Journ. Anat. and Phys.,' May, 1868; ibid., May, 1870.

to be. We have attended only to the more salient points in the irregularities.

Finally, the healthy condition of the thoracic viscera, indicating undoubtedly healthy circulation, and the normal state of the digestive system, would seem to explain why this fœtus, notwithstanding all these apparently important peculiarities, should yet possess a well-nourished body, and all the other indications of its having completed its full term of uterine life.

THE DELIVERY OF A MONSTER.

By Dr. SCHOFIELD.

THE following case, which I had the good fortune to observe in the obstetric clinique of Professor Streng, at the "Gebärhaus," Prague, seems of sufficient interest to be put upon record.

The patient, a multipara, was taken in labour on the evening of Sunday, October 6th, at her own house. The accoucheur in attendance diagnosed a breech presentation, and a small female child (weight 4 lbs., length 16½ in.) was born in the breech position, with very little difficulty, about midnight.

Shortly afterwards, the feet of a second child presented at the vulva, and, as little progress was made, extraction was attempted by traction on the legs.

Though unsuccessful in effecting delivery, the accoucheur succeeded in tearing off both lower limbs from the trunk; the right lower limb was disarticulated at the hip-joint, while the left gave way along the line of junction of the superior epiphysis with the shaft of the femur.

He then tried, but unsuccessfully, to complete the extraction by the aid of a blunt hook.

This also failing, the woman was conveyed here (a two

hours' journey) in a springless waggon, and arrived about 4 a.m.

The mutilated breech presented at the vulva. Repeated attempts were made to extract, but in vain. At length, the pains increased in strength, and gradually an enormous belly came into view, and with great difficulty the monster was born about 5 a.m.

A single placenta was ejected a few minutes afterwards.

The mother's temperature was raised to 102° for a day or two, but since then, up to the present date (October 15th), both mother and child have done well.

The whole trunk of the monster was enormously œdematous. Its length was 15 in., greatest circumference round the belly 16 in. The malformed head was quite sessile on the trunk. No cranial bones could be felt, but the facial bones were tolerably developed. One large irregular opening represented nose and mouth; there appeared to be only one eye, though eyelids were present on both sides. No trace of external ears or upper extremities could be found. The position of the anus was indicated by a slight depression of the skin. External genitals seemed to be absent, and also nipples. The lower limbs were very imperfectly developed and œdematous, two toes appearing on one side, and three on the other.

Placenta.—The umbilical cord of the living twin was normally inserted about the centre of the placenta, but gave off a large arterial branch, which, coursing along the margin of the placenta, became continuous with the single umbilical artery of the monster. The umbilical vein of the monster was also connected with the umbilical vein of the healthy twin. The explanation given by Claudius of the origin and working of this curious circulatory anomaly is worth reproducing.

He supposes that at an early date an anastomosis of the vessels of the two fœtuses occurs. The heart of one fœtus being slightly stronger than that of the other the circulation through the umbilical vessels of the weaker

one is gradually impeded; it receives less and less blood from the placenta, and at length receives all its blood from the healthy fœtus. The current of blood in its umbilical vessels is now reversed; it receives blood through its umbilical artery (blood, be it remembered, which has already circulated through the healthy fœtus), and returns blood through the umbilical vein.

When this stage is reached, it has become a mere passive appendage to the circulation of the healthy fœtus. Its heart, being now unnecessary, degenerates, and its circulation is carried on entirely by the agency of the healthy fœtus. Its imperfect development, and the extraordinary preponderance of embryonic connective tissue in its composition, is, at any rate, partly explained by the fact that it is supplied entirely with venous blood.

It has been observed that monsters of this kind only occur in twin labours, and that one child is always well developed. May we not justly, in such cases, regard the phenomenon as an intra-uterine "struggle for existence" with the necessary result of the "survival of the fittest?"

Dr. Hicks called attention to a paper by Dr. Goodhart and himself, in the 'Guy's Reports,' showing dissections of similar monsters, which had been supposed by some to be a budding from the other fœtus in very early states, being without heart, lungs, having a very short intestinal tube, and always deriving its blood from the other fœtus. Sometimes these abnormalities were in shape like an oval ball, the vessels entering into the middle of one side.

REPORT OF A CASE OF FATAL EMBOLISM OF THE RIGHT HEART AND PULMONARY ARTERY NINETEEN DAYS AFTER DELIVERY, WITH A FEW CLINICAL REMARKS.

By GEORGE ROPER, M.D

PHYSICIAN TO THE EASTERN DIVISION OF THE ROYAL MATERNITY CHARITY; PHYSICIAN TO THE ROYAL INFIRMARY FOR WOMEN AND CHILDREN, WATERLOO BRIDGE ROAD.

ON the 18th of March, 1878, at 5 a.m., I was called by one of the midwives of the Royal Maternity Charity, to visit M. B—, æt. 25, who had just been delivered of her fifth child. She was a healthy woman, and her labour had been good, but the placenta was retained. There had been only a slight degree of flooding, not sufficient to produce faintness. The placenta was simply retained, being partly in the vagina, and was easily removed. A dose of ergot was given before its removal. The uterus contracted well and there was no further flooding. She did well till the third day, when a severe pain attacked her in the lower part of the right side of the chest anteriorly. The pain was greatly aggravated on respiration. The respiratory murmur at the base of the right lung was everywhere perfect, and no pleuritic rub could be heard. There was some abdominal distension, and pain not increased by pressure. These symptoms were treated by large doses of opium, and at the end of three days she seemed to be quite well. At this time I found her sitting up by the fire, and I told her I should not see her again as I thought her convalescent, but if any further trouble should happen she was to send for me. At the end of the report in my case book I made the remark "convalescent at last visit." This was on the sixth day after delivery. On the twelfth day after delivery I was requested to see her as she was severely ill.

I found her breathing with the greatest difficulty, respirations 60 in a minute. She was struggling for breath and felt a sensation of impending suffocation. The inspirations were of the deepest and most forced kind; every voluntary effort she could make was used to inhale air. There was no pain on respiration, but her distress in breathing was terrible to witness. Her whole body was agitated by the voluntary muscular effort to assist each respiratory act. The features were not bloated, as in the dyspnœa of bronchitis or pneumonia, nor were they at any period of her illness, but were rather sharp and pinched, as in collapse. Pulse 160; temperature for the most part normal, never exceeding 99°. She complained of being chilly, and the extremities, as felt by the hand, seemed to be cold. Urine plentiful, sp. gr. 1020, acid, and free from albumen.

With few exceptions, I saw her three or four times daily till her death and so great was her dyspnœa throughout the whole time, that I each day scarcely expected her to be alive at the next visit. In the whole course of her illness there was scarcely any variation in her symptoms and sufferings. She had no œdema of the extremities, but the end of the nose became ecchymosed by blood extravasated beneath the skin, and there were several similar mulberry coloured patches on the back of the hands and forearms.

No morbid cardiac sounds to be detected at any period of the illness. There were no physical signs of pulmonary disease till within three days of her death, when bronchial râles were heard over both lungs anteriorly, except at their apices. I believe I could at one time hear a friction sound posteriorly between the scapulæ, synchronous with the action of the heart. Posteriorly, at this time, there were dulness on percussion, fine crepitation and tubular breathing on both sides, and there was a scanty well-marked pneumonic expectoration of a dense kind free from air. At no time did she complain of pelvic trouble, nor could any mischief be discovered on examination *per*

vaginam. During several days of her illness, Dr. Herman saw her with me, and on two or three days he entirely attended her for me. She died on the nineteenth day after delivery, having struggled on for eight days in a state of terrible suffering from dyspnœa. A post-mortem examination was made by Dr. Edwin Burrell thirty-three hours after death, Dr. Herman, Mr. Hopkins, and myself being present. Rigor mortis well marked; body well nourished; ecchymosis extending over the whole of the end of the nose. There was severe perihepatitis; the convex surface of the liver everywhere adherent to the diaphragm by a recent deposit of thick greenish-yellow fibrin. The under surface of the liver was adherent at a small point to the transverse colon by recent inflammatory exudation. There was no general peritonitis. The left fimbriated extremity of the Fallopian tube was adherent to the fundus of the uterus by recent inflammatory product. The veins of the right broad ligament and the plexus of veins surrounding the cervix and lower portion of the uterus were plugged with clotted blood, much of which was of very pale colour. The uterine substance and its mucous membranes were free from marks of inflammation. The visceral and parietal layers of the pleuræ were almost universally inflamed and covered by a deposit of greenish-yellow fibrin, and the left pleural cavity contained a considerable quantity of fluid. The substance of each lung posteriorly at the base was inflamed.

Dr. Sutton kindly gave me his opinion as to the nature of this inflammation. He had no doubt that it was of pyæmic origin, as it had occurred in isolated patches or nodules. The substance of the liver was healthy, and the kidneys were free from disease. Head not examined. I carefully preserved the heart entire, and dissected out the large blood-vessels, and then made incisions into its cavities. Dr. Goodhart subsequently examined it, and has kindly sent me the following report:—"With reference to the speciment of heart you asked me to examine, there can be no doubt, from the shape of the clot, that the case was

one of pulmonary embolism. The only question is whence came it? From the appearance of the clot in the right auricle, I believe that there has been a primary dislodgment of clot from the saphena or other veins, which has become caught in the right auricle, that further clot has formed around this *in situ*, and that a portion of this has become dislodged and forms the pulmonary embolism."

Dr. F. Charlewood Turner has kindly furnished me with the following microscopic report of his examination of the specimen:—"Examining the sections from the specimens you gave me, it appears that the greater part consists of blood-clot formed in the ventricle in different stages. The recent clot is distinguishable by its colour. The homogeneous-looking decolorised part seen in close relation with the heart-wall consists in chief part of clot of some date, from which the red corpuscles have entirely disappeared, and consisting of a very delicate network, in the meshes of which leucocytes are seen, without any distinct blood-vessels, but apparently having fine channels running through it, evidently maintaining its vitality somehow. In other parts stratified clot is seen between the columnæ carneæ, more or less degenerating. The muscular tissue of the heart's wall adjacent to these last is seen to be infiltrated to some extent by a nucleated tissue running along the vessels between the bundles and individual fibres, apparently a slight degree of myocarditis. The endocardium here was also slightly thickened and nucleated. At the surface of the heart an increase of connective is notable, with some fatty infiltrations continuous with the surface adipose tissue. In most parts the muscular bundle and muscular fibres seem surrounded by some excess of fibrous tissue."

I have wished to bring this case before the Society because the records of such cases in which the diagnosis seem indisputable during life (and its correctness was verified by examination after death) are not numerous. One other case has occurred in my practice in the Royal Maternity Charity, which is published in the 'Obstetrical

Journal of Great Britain,' vol. iv, p. 174. Post-mortem examination showed that the embolus had lodged in a smaller branch of the right pulmonary artery, and the subsequent plugging had occurred in a direction towards the heart till it reached the main trunk, and then occluded the left pulmonary artery, when sudden death took place.

In the case now before the Society the embolus lodged in one of the cavities of the right heart, as seen in the accompanying specimen. The manipulation which the heart has undergone has caused the clots to drop from the pulmonary artery itself; they are, therefore, not now to be seen there *in situ*. Both these cases are secondary from the occurrence of detached clots—clots carried along the blood-current and arrested at a remote part. In the present case there is every reason to believe that the original seat of thrombosis was in the veins of the broad ligament or in the plexus of veins surrounding the cervix and lower part of the uterus. It is not to be doubted that the periuterine, the perihepatic, and pleuritic inflammations, and the pneumonia, were of septicæmic origin. The correlation of the original thrombus in the veins with the septicæmia affords a debatable question as to priority. It is, however, not my intention to speak beyond the mere clinical bearing of these cases, as the subject has recently been ably brought before the Society by Dr. Playfair ('Obstet. Soc. Trans.,' vol. xvi) and fully discussed. My chief object is to secure for this terrible disease a certain recognition during life by its signs and symptoms. When a patient recovers, the correctness of the diagnosis may be open to doubt. Dr. Bristowe, a good authority on this subject, when speaking of cardiac thrombosis ('Theory and Practice of Medicine,' p. 565), says: "It is not easy to specify symptoms by which clots formed in the heart during life may be recognised. It is possible, of course, that they may occasionally, from their position, interfere with the due action of the valves, and so induce endocardial murmurs; but it is certain that in the great majority of cases they have no such effect." In this case

the cardiac sounds were repeatedly examined without the detection of the slightest murmur, and during the first four or five days of the illness the respiratory sounds of both lungs were everywhere perfect. Dr. Herman can confirm my observations on these points. There could be only one conclusion, that at the beginning of the illness, and for several days of its continuance, there was an utter absence of all physical signs of heart or lung affection. The absence, then, of signs by auscultation and percussion in this case confirm the statement of Dr. Bristowe, which I have quoted. But how are we, with nothing seemingly wrong with heart-sounds and the sounds of respiration, to account for this terrible dyspnœa? I had no doubt when I first saw this patient after she was attacked with dyspnœa, that she was suffering from thrombosis or embolism of the heart or pulmonary artery. There seemed to me to be no other explanation of her frightful suffering, and I can only feel that in a like case we must be driven to the conclusion that this severe dyspnœa, coupled with a history of recent delivery, is pathognomonic of cardiac thrombosis or embolism.

I may here relate a singular clinical incident as bearing on the absence of a murmur in a case of severe heart disease. A gentleman had had rheumatic fever, which left him with signs indicating considerable damage of the aortic valves. He had a systolic basic bruit of the harshest and loudest kind. This was followed by hypertrophy and subsequent dilatation of the heart. He had, however, been able to live some years after in tolerable health; but one day he was seized with slight symptoms of acute rheumatism, accompanied by severe paroxysms of dyspnœa. He was, for an hour or two, in a state of impending suffocation. His distress from difficulty of breathing much resembled that connected with the dyspnœa of cardiac thrombosis, yet from the commencement of his attack of dyspnœa the loud harsh bruit entirely ceased. Dr. King Chambers saw him several times in consultation with me, and from the absence of all physical signs he

was unwilling to believe in the existence of valvular disease. The physical signs pointed simply to a large dilated heart. He lived on in the same state for three weeks. On examination after death the aortic valves were found to be hard, shrivelled, and very rough. On their convex surfaces there was a soft gelatinous deposit of fibrin, which had nearly occluded the aortic orifice; this was easily scraped off and old disease of the valves was exposed. Here was a case in which recent disease had obliterated the signs of an old one. The explanation of the cessation of the bruit seems to be that the recent deposit of soft fibrin on the diseased valves had so much obstructed the aortic orifice that only a very small stream of blood could pass through it, a stream so small in volume and so little in force as to be unable to produce a bruit. The same kind of explanation may, I think, be given for the absence of a murmur when a large clot occupies one of the cavities of the heart. The blood stream then passing through the heart is much diminished in force and volume; it can only filter through the ventricle in a very small current by passing between the surface of the clot and the inner wall of the ventricle. Whether this explanation be correct or not, it is certain, as in the specimen before the Society, that a large mass of clot may occupy the right cavities of the heart during life without producing a murmur, and that a recent deposit of fibrin can remove a harsh and loud bruit resulting from old valvular disease. In conclusion, I would observe that, given a case of a woman who has recently been delivered, with or without any existing local inflammation, but more especially with signs of inflammation about the pelvic organs and structures, however slight, with the presence of severe dyspnœa, such as existed in the case I have just reported, and with the absence of physical signs of cardiac and pulmonary disease, we shall most frequently find that it is one of cardiac or pulmonary thrombosis or embolism.

CASE OF ABORTION, FOLLOWED BY SEPTICÆMIA AND FATAL CARDIAC THROMBOSIS.

By J. T. Musgrave, L.R.C.P. Ed.

Mrs —, æt. 32, a fair delicate woman, the mother of four children, when pregnant rather over three months, miscarried on October 6th. She was not seen by a medical man until five hours after the occurrence, and lost a large quantity of blood. The placenta did not come away for several days, and then only in fragments, some being removed by an instrument, the discharge having been very offensive. She progressed apparently favorably, was ordered wine and nourishment, and on the 21st was carried down to the drawing-room, when she had a violent rigor. I was requested to see her on the next morning, and found her in the following condition:—She looked perfectly bloodless, the temperature 104½°, pulse 140, and she complained of great pain in the lower part of the abdomen. I found no tympanitis, but much tenderness on pressure over the uterus and in the right iliac fossa, and on making a vaginal examination the uterus was large and tender, and a mass as large as an orange occupied the right broad ligament. There was no discharge or unpleasant odour. The bowels were very relaxed, and had been for two days, as she had taken a calomel powder as she fancied herself bilious. I ordered turpentine stupes to be applied to the abdomen, to be followed by linseed poultices, the vagina to be injected with hot poppy decoction with Condy's fluid, and a morphia suppository to be inserted at night, with chalk mixture and opium to check the diarrhœa, and beef tea, milk, and champagne, as diet.

October 23rd.—Her condition was rather more satisfactory. The diarrhœa had ceased; the temperature 103½°, and the pulse 130. She had quinine and bromide of potassium. She continued to improve until the 30th, had slept better,

had less pain, and felt more inclination for food, but the temperature had never been less than 102½° or the pulse under 130. On this day she complained of feeling more ill. She had a slight cough and the respiration was a little hurried, and the temperature had risen again to 103½°. I requested Dr. Playfair to see her, which he did, and detected a bruit over the right ventricle. He suggested she should take Tinct. Ferri Sesquich.; and chloral and nepenthe at bedtime, and to continue the same diet. She improved considerably and on my visit on Saturday, November 2nd, said that she had never felt so well or free from pain since she had been ill, and asked to have a partridge for her dinner. I had not left the house half an hour when, on being slightly raised in bed to take some food, she complained of a sudden violent pain in the chest. Her friends thinking she had fainted called in a medical man near at hand, who gave her brandy, and on my arriving shortly after I found the heart pulsating most violently, the respiration hurried, 50 in the minute, and the countenance most distressed. From the symptoms there appeared little doubt that there was a clot in the right side of the heart, and Dr. Playfair, who saw her at 5, then confirmed this opinion. Ether, ammonia, and stimulants were administered, mustard poultices applied over the region of the heart, and hot water bottles to the feet, but she gradually sank and died at 3 a.m. on Monday, November 4th, being conscious to the last moment, the heart's action gradually getting weaker, and the respiration more feeble.

Dr. BARNES thought these cases, especially Dr. Roper's, were of inestimable value as clinical records. Both illustrated a theory as to the genesis of thrombosis, upon which he had often dwelt. The immediate exciting cause of thrombosis seemed, in the great majority of cases, to be the ingestion of septic matter into the blood. The blood of pregnant women was, as we know, highly charged with fibrin; it was highly coagulable, but during pregnancy thrombosis was rare. He had only seen two or three clear cases. The explanation was that during pregnancy there was no septic matter supplied. But after labour, when involution set in, then this was rapidly poured into the blood, and if the glandular

system, liver, kidneys, skin, mucous membrane of intestinal tract were not in good working order, noxious matter would accumulate in the blood, and thrombosis might ensue. This precipitant, the product of involution, might be enough, as was apparently proved by a case, recently dying after premature labour, at St. George's. The uterus was fairly contracted, its interior quite healthy, but there was lardaceous degeneration of both liver and kidneys, so that their excreting power was impaired. (In this case there was, however, as almost always in phlegmasia dolens, pelvic cellulitis.) More commonly it happened that the precipitant was septic matter in the uterus or its sinuses, the product of decomposition. This entering the veins and lymphatics would coagulate the blood *in loco*. And in cases such as Cruveilhier called "suppurative phlebitis," when the poison was intense and copious, and the glandular system perhaps damaged, imperfect clotting might extend from the pelvic and iliac veins up along the vena cava as far as the heart.

Dr. CORY said cases of this kind show, I think, the importance of rest after labour or miscarriage as long as any offensive discharge continues. How often do we hear of women getting up early and taking cold, *i.e.* they have rigors, probably from the absorption of septic matter into the blood. Exertion may be the cause of this. We certainly see the good results of leaving external wounds at rest, even though they be bathed with fetid pus, yet as long as the surface remains undisturbed absorption does not take place; disturb and break up the filtering surface and you get all the symptoms of septicæmia.

Dr. GERVIS, after referring to the great value of Dr. Roper's paper, wished to add his testimony to that of Dr. Barnes as to the great preponderance of septicæmia as a cause of thrombosis. Indeed, in the case of phlegmasia dolens, he would go beyond Dr. Barnes, and say that he believed in every case, even in those in which Dr. Barnes had said there might be a "clean uterus," careful examination of the pelvis would discover indications of pelvic inflammation, the result, it might be, of some vaginal ulceration which had healed, the uterus itself not becoming affected. He would like to ask the President as to the exact character of the sounds heard by him over the right ventricle in Mr. Musgrave's case.

Dr. HICKS also said that the septicæmic origin of cardiac thrombosis also taught us that in reckoning up the ill doing after labour we must include these amongst the rest, and not take the actual death-rate as a criterion of the ill effects of any evil influence. But, at the same time, he thought we must not overlook the tendency which hæmorrhage alone has to permit coagulation within the circulation, and narrated a case where the patient for two weeks did quite well, had a severe hæmorrhage, and three

days after had symptoms of cardiac disturbance, quite similar to the case narrated, and suddenly died on the sixth day after the hæmorrhage, and about three weeks after delivery. In this case there had been no local inflammation, as proved by examination.

Dr. JOHN WILLIAMS asked whether in Dr. Roper's case the dyspnœa came on after any sudden exertion. He referred to a recent case of embolism after post-partum cellulitis, phlegmasia dolens, and pelvic abscess. After the opening of the abscess the patient was doing well, when she got up and made a slight effort, which was followed by a rigor. She died in three days, and multiple small abscesses were found in the lungs, set up by emboli, which had been carried from a thrombosis of the external iliac veins. He had, however, seen thrombosis of the pulmonary arteries in phthisis without anything septic. Was there pelvic cellulitis in Dr. Barnes' case? He had never seen phlegmasia dolens without it.

Dr. BARNES replied there had been cellulitis, but no suppuration.

Dr. BRAXTON HICKS said that the low circulation from anæmia after excessive hæmorrhage had often much to do with thrombosis. He had seen a case of probable embolism with thrombosis without any evidence of cellulitis or enlargement of the uterus.

Dr. EDIS remarked that, in cases of septicæmia attended or not by blocking of any of the veins, the profession was unanimous in insisting upon the most absolute rest and quiet, in order to avoid any risk of thrombosis. He thought though it was possible that by insisting too rigorously upon the recumbent position during the first nine days following a confinement, more especially if we had any reason to believe that any clots were retained in utero, or where the lochia were at all offensive, we incurred the risk of producing that which we were always so anxious to avoid, viz. septicæmia, by preventing the escape of putrid discharges. Allowing the patient to sit up for a few minutes at a time, more especially when the bladder or bowels were relieved, when a certain amount of straining always took place, would enable any discharges to drain away more effectually, and also facilitate the expulsion of any clot remaining in utero, and which, otherwise, might become decomposed and give rise to serious danger. It was well to correct occasionally the traditions of the past by bringing to bear upon them the experience of the present. Many a case of so-called auto-genetic puerperal fever might probably have been prevented had we not been afraid to depart from the universal custom of enjoining absolute rest, or had been more careful in insisting upon the employment of the syringe with some disinfecting lotion during the first few weeks following delivery.

Dr. ROPER, in reply, remarked that the chief object in reporting this case was to secure if possible a certain recognition of this disease by signs which existed during life. Dr. Playfair, in his remarks on Dr. Musgrave's case, chiefly founded his diagnosis on the presence of a murmur heard at the base near the pulmonary valves. As a post-mortem examination was not made there could not for certainty be said that there was thrombosis or embolism. When we reflect that in most of these cases there had been severe flooding (and this occurred in Dr. Musgrave's case), we are then sure to have an anæmic, aortic bruit of the loudest kind. The heart is also tumultuous in its action. There could, however, from the history of Dr. Musgrave's case, the character of its symptoms, and the mode of death, be no doubt as to its nature. In Dr. Roper's case, by repeated examinations extending over a week during life, no bruit could be detected. The quotation from Dr. Bristowe's work affords the strongest evidence that bruits are for the most part absent. With regard to septicæmia being the first step in puerperal thrombosis, in each of Dr. Roper's cases there was first of all septicæmia. It must, however, be borne in mind that septicæmia is not necessarily the cause. The thrombosis may form from a condition inherent in the blood itself. There may be an excess of fibrin and a great tendency of the fibrin to undergo spontaneous coagulation. In most of these cases there had been flooding, an occurrence greatly favouring coagulation. In reply to Dr. John Williams, as to whether the first symptoms came on after exertion, Dr. Roper said that the patient was reposing in bed when first seized with the dyspnœa.

APRIL 2ND, 1879.

W. S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—55 Fellows and 5 visitors.

Books were presented by Dr. H. W. Acland, Dr. Rustomjee N. Khory, Dr. Owen Rees, and the Royal College of Physicians.

Dr. Owen Rees also presented to the Society Dr. Blundell's apparatus for transfusion, in a mahogany case.

Thomas Lawrence Read, M.R.C.S., was admitted as Fellow of the Society.

Charles Verrall Willett, M.R.C.S, (Brandon, Suffolk). was declared admitted.

The following gentlemen were elected Fellows:—Alban H. G. Doran, F.R.C.S.; Charles L. Evershed, M.R.C.S. (Arundel); Sir Joseph Fayrer, M.D.; Thomas W. H. Garstang, M.R.C.S.; George J. McKeough, M.B.; George E. Moore, M.B. (Maidenhead); Robert R. Stillwell, M.D. (Beckenham); J. Knowsley Thornton, M.B.; Edward W. Tait, M.R.C.S.; and William B. Willans, F.R.C.P. Ed. (Great Hadham, Herts).

The following gentlemen were proposed for election:—Walter S. A. Griffith, M.R.C.S.; Thomas Wells Hubbard, M.R.C.S.(Lenham, Kent); Hormasji Dossabhai Pesikaka,

L.R.C.P. Ed. (Bombay); Robert F. Phibbs, L.R.C.P. Ed.; and Fredk. Ogilby Ross, M.B., B.A. Dublin.

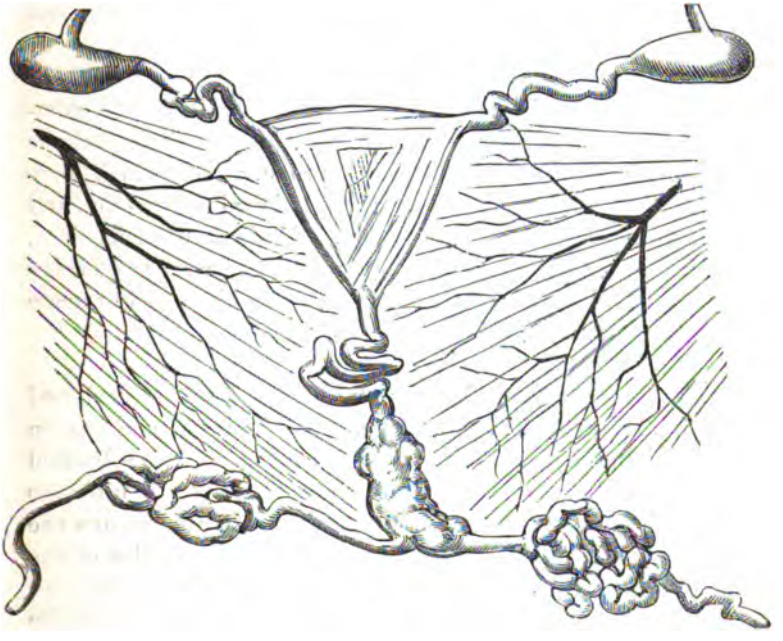
Dr. GODSON read the description of a double monster which had been dissected for him since he exhibited it to the Society in July, 1878.

These two fœtuses are apparently of about six months' development. All the limbs are well-formed and distinct. The two heads are both well formed and also distinct. The line of union extended from the inter-clavicular notch for six inches down to near the umbilici, which were separate. There were two distinct and completely formed cords. The skin around the umbilici was much thinned. On removing the skin the abdominal muscles, oblique and recti, were of the right number and considerably developed. In the front of the thorax the union was formed by a junction of the costal cartilages of the one to those of the other. In the lateral wall of union there is one rudimentary sternum. Each has two clavicles, and the pectoral muscles are large and well developed, the origins of the opposite muscles slightly interdigitating.

Interior of thorax.—The pericardial cavity is large and common to both. The two hearts are well formed and completely distinct, each having the usual number of vessels, but one was transposed to the right side, so that its apex lay immediately opposite to and in contact with the apex of the other. Though the heart was transposed, its cavities and their vessels were in their normal relation. The thymus gland is well formed in each. The pleural cavities were quite distinct, and the lungs normal in number, one pair to each fœtus.

Cavity of abdomen.—The diaphragm is common to both, forming a large dome. The liver is common to both; it appears to consist of two of normal shape, but adhering by their posterior surface to each other. The anterior surfaces look respectively outwards, facing the line of communication. Between the two masses of liver there was a prismatic cavity with the apex upwards. The

umbilical veins enter one at each side. The gall-bladder is not developed in either. The stomach of each was in its right position and normal in shape; the small intestine running from each is one and a half inch long, and then opens into a triangular cavity situated between the masses of the liver. Each opens into one of the angles at base of the triangle, which is placed highest up between the livers. This cavity is two inches broad at base, and



the same in vertical diameter. From the apex proceeds intestine for six inches, becoming gradually sacculated and somewhat enlarged. It then divides, giving off intestines, one of which, after coiling about, is traced to one anus, the other equal in length and extending to the other anus. There is no distinct cæcum, but in one part of the intestine is an appendix vermiformis. Each intestine was suspended in the usual way by mesentery. The pancreas

and spleen were in their right places, lying across the spine, and did not communicate with each other. The uterus and ovaries of each are well formed and distinct. The kidneys, as usual, lobulated, are of the right number, and in their proper positions, also the supra-renal bodies. In one the bladder and urachus is rudimentary, but in the other it is well developed. Each has two distinct hypogastric arteries.

The vascular communication is not very plain, but there must have been large anastomosis through the liver, and also, though less so, by the mesenteries.

Dr. GODSON showed a set of pocket instruments, comprising speculum forceps, puncturing lancets, caustic holder, uterine probe, Playfair's probe, all of which were contained within an ordinary cylindrical speculum, and could be carried in the pocket. Besides the speculum, which formed the case for the whole, there were two others of smaller size, which fitted within it, all these being made of aluminium.

Dr. BARNES showed a new midwifery forceps, designed by Dr. Marshall, of Mortlake. The novelty consists in each blade being allowed to rotate on its axis to a limited extent by means of a pivot joint introduced into the shank just below the fenestrated part. By this means the blades apply themselves perfectly flatly to the sides of the child's head, not pressing with one side of the blade more than with the other, as is very commonly the case with the ordinary forceps. The grasp of the head is firm and solid, and being spread evenly over a large surface there is much less chance of injury to the child. Locking also is facilitated.

Dr. AVELING thought he saw an element of danger in the use of pivoted blades, for although when the blades are locked they must be parallel longitudinally they need not be so transversely. The convergence of the edges of the blades allows them to be locked upon the side of the head, on one or the other side of its

longest diameter, and thus placed pressure of the handles would cause the blades to slide down the sides of the head, diminishing

thereby their prehensile power, and producing pressure by their edges upon the maternal tissues and the fœtal skull.

The PRESIDENT said the invention was very ingenious, but he doubted whether such an expedient was required, since in practice he had not felt any disadvantage to the drawback of ordinary forceps, which it was intended to rectify.

Dr. MURRAY said that the rotating blades would prevent any artificial rotation of the head by means of the forceps, which was sometimes desirable, in order to rectify its position.

Dr. JOHN WILLIAMS said that the instrument did not meet a difficulty which was much more commonly felt, practically, than the one that had been mentioned, namely, that the present curvature of the blade of the forceps does not accurately fit the head when the head is seized diagonally.

Dr. CORY said objections to the use of these forceps seemed to be a little premature until they have been tried, first on the

dummy and then on the living subject. That they are intended to meet a real defect in the ordinary forceps I think is manifest when we consider the deep mark the edge of the blade of the latter often produces on the heads of children when applied at the brim.

Dr. ROUTH thought the objection of Dr. Aveling to Dr. Marshall's forceps would not apply, as once the locking of the forceps was accomplished, the blades must necessarily be in a parallel position, which was all that was required to hold the *child's head* fast.

Dr. T. CHAMBERS presented two ovaries (double ovarian congenital inguinal hernia), chiefly interesting, perhaps, because of their rarity. He removed them antiseptically a month ago, and the patient is progressing satisfactorily. He hoped, with the permission of the Society, to be able to present a full report of the case at its next meeting. He thought that by bringing the specimens before the Society to-night, a committee might be appointed to examine and report upon them. If so, the two reports being read conjointly the case would be complete, and might afford materials for an interesting and instructive discussion.

Dr. Galabin and Dr. John Williams were appointed to examine them.

The PRESIDENT announced that it had been decided to have a debate at the next meeting of the Society, and that the subject which had been selected by the Council was "The use of the Forceps and its alternative in Lingering Labour." Dr. Robert Barnes had consented to open the discussion.

ON A CASE OF EXTRA-UTERINE PREGNANCY.

By C. H. F. Routh, M.D.

Clara B—, alias W—, æt. 22, was admitted under my care January 31st, 1878. She complained of pains "in her lower stomach, which had persisted for a month." Had one mishap three years ago, when said to be first married. Had no leucorrhœa, was regular, but losing a great deal each time. Had a good deal of backache and bearing down. The last period, which occurred a week before admission, stopped suddenly. There were no shivers at any time. At present she has occasional rushes of bloody discharge, about a dessert-spoonful each time, accompanied with very slight forcing pain. She lies, apparently, in comfort on her back, and does not call attention to preference of decubitus in either side. Her voice has also nothing peculiar in its tone.

Examination.—The belly is full, but not unusually swollen or large. Pressure inferiorly over the lower part of it detects an enlargement, irregular, yet rounded, extending across from an inch to an inch and a half above the pubis, and more tangible and distinct on the left side. Dull on percussion. Examined per vaginam a large mass, about the size of a moderately large cocoa nut, fills the entire pelvis and Douglas's space. The os is very high up, felt with difficulty just behind pubis. The sound introduced with a little management in a lateral direction and passes into a large cavity, in which it can be moved freely, and is followed by a watery discharge. The tumour, more or less fixed on every side, is rounded, harder on the right side than on the left, irregular to the feel, but distinctly fluctuating. It appears to be very vascular, arteries beating in every direction, whether examination be made per vaginam or rectum.

Dr. Rogers, who first saw the case in consultation, agreed with me as to the fluctuating character of the tumour. Dr. Savage saw her also subsequently with me in consultation. From the history it was believed to be one of hæmatocele following on the suppression of the catamenia, as before said, a week before admission. Dr. Rogers advised rest and no interference, as the catamenia appeared to be present, and I thought rest also advisable. I contented myself with ordering Syr. Ferri Iod. ʒj, Pot. Bromid. ℈j, and Inf. Calumbæ ℥j, t. die. The catamenia ceased.

February 3rd.—Dr. Savage saw her again a few days after in consultation. He advised early puncture by the aspirator, and I felt bound to agree with him, and mainly because the tumour appeared very tense and full, and I feared rupture of the cyst. Accordingly, on February 18th, eighteen days after admission, I prepared to use the aspirator, but when placed on the table, and exposed to a good light, the right pudenda appeared so blue that the idea of pregnancy was at once suggested. The breasts were now examined and found very suspicious. The areola was large, pink, with a large number of small white follicles around the nipples. This idea was further strengthened by the exceedingly vascular character of the tumour itself, especially when felt per rectum, and so much so as to make it difficult to introduce the aspirator per rectum lest an artery should be wounded. Drs. Rogers and Wynn Williams, who now joined us, and myself concurred, therefore, as to the case being one of extra-uterine pregnancy, and from the position of the uterus we concluded it was tubal. It became, therefore, doubly imperative, lest rupture should occur and so prove fatal, to open the tumour and let out the contents. Accordingly I proceeded to puncture it per rectum with the aspirator, selecting, with great care a spot free from any pulsation. At first a serous fluid came out followed by blood. The quantity of the former was about one pint, of the latter two or three ounces. This blood was almost pure, and as

the tumour appeared all but emptied, and yet the flow of blood showed no tendency to cease, a little iodine solution was first injected by the aspirator and removed again. Subsequently, as the bleeding persisted, a solution of iron perchloride, diluted about ½ with water, was injected. This arrested the hæmorrhage. The greater part of the iron so injected was again withdrawn by the aspirator and the patient put to bed.

She continued comfortable up to the 21st. The temperature taken was as follows:

	In axilla.	In vagina.	Pulse.
18th (9 p.m.)	99°	99·6°	84.
19th (9 a.m.)	99·2°	99·8°	94.
(8.30 p.m.)	99°	100°	94.
20th (8.30 a.m.)	98·4°	99·6°	84.
(9 p.m.)	99·8°	101°	98.
21st (9 a.m.)	101°	101·8°	108.

The bowels were freely opened on the 20th, nor did she, till the 21st, appear to be otherwise than comfortable.

At 12 a.m. on the 21st, however, she was taken with a violent chill and shiver. She became very pale and agitated, and complained of great cold. Warm bottles were placed around her, hot brandy-and-water was given, and in about half an hour she became warm and felt better. At 3 p.m. feverish excitement had set in. Pulse was 144; temperature in axilla 104°, vagina 104·6°, but it fell at 3.30 to 103° axilla, 104° vagina. At 4 it was 102° axilla and 103·4° vagina.

An examination was now carefully made. I found the tumour, which, as before stated, had after the puncture appeared almost empty, was now as large as ever in the pelvis, fluctuation very distinct, and the sac again tense. The same gushes of watery blood per vaginam occurred, and during one of these I learned a membrane, exactly resembling a decidua, had passed away. This opinion a subsequent microscopical investigation fully confirmed.

Called away urgently to an instrumental labour, I left the case under the care of my colleague, Dr. Rogers,

asking him to reopen the sac with the aspirator and let out the fluid. He was proceeding to do so when Dr. Greenhalgh came in. In consultation together, as the temperature and pulse had fallen (124), and the patient expressed herself as feeling better, delay was thought a more prudent course, but the use of the aspirator recommended should she become worse. Dr. Greenhalgh thought she would certainly die if interfered with then, and as some improvement had occurred it would be wiser to wait. A grain of calomel and the same of opium were ordered every three hours if pain existed.

At 8 p.m. the improvement persisted. She herself said she felt very comfortable. Temperature in axilla 102°, in vagina 103°; pulse 124; resp. 24.

About half past 12 on the morning of the 22nd, she was taken with sudden pain in the left iliac region, became almost pulseless, pale, collapsed. Sent for immediately I concluded the cyst had burst. Brandy was given and opium to relieve the pain, and the body kept warm. At 4 a.m. she had in measure rallied. Temperature in axilla 102·3°, in vagina 103°; pulse 136; resp. 86. The pulse, however, although felt, was very thready. These symptoms, however, did not continue, and she became weaker and died at about 10 a.m.

Sectio cadaveris was performed by Mr. A. Doran twenty-four hours after death. Body well nourished and remarkably well made. Rigor mortis persistent. *Lungs* perfectly healthy. *Heart* normal, but apex displaced to fourth left intercostal space.

On opening *abdomen* a large thin clot was found concealing all the superficial viscera except a portion of the stomach, the transverse colon (which was displaced to the front of the stomach), and the uterus, which rose three inches above the pubis. On raising the clot (which could hardly be contained in a pint gallipot) the omentum was found healthy, but attached to a tumour near the uterus by an *old* adhesion. Not a trace of peritonitis could be detected, but the peritoneal cavity contained a pint of

fluid blood, and there were masses of clot in the cellular tissue of the iliac fossæ.

A tumour almost the size of a cocoa-nut lay behind the uterus, extending to the right into the iliac fossa, displacing the cæcum, and backwards against the fifth lumbar vertebra. It was soft and its surface very vascular. It could be seen, even *in situ*, to be a dilatation of the right Fallopian tube.

On examining the back of the tumour a hole of the calibre of a No. 6 male catheter was found. On opening the tumour it was seen to contain one ounce of blood, a placenta; and a fœtus, about third month, lay with its head downwards. The umbilical cord was about four inches long and attached to the front of the cavity. Remainder of Fallopian tube was coiled behind uterus in Douglas's space under the left tube. Right ovary small and pale. Left Fallopian tube dilated to thickness of little finger, left ovary small. No trace of the opening made through the rectum with the aspirator could be detected.

General remarks.—This case, unfortunate though it proved, I think brings out several points of interest, to which, as they may be useful in the management of future cases, I may be pardoned if I venture to refer.

First as to the question of diagnosis. This presents itself in three aspects. 1st. What evidence is there that this was a case of extra-uterine pregnancy? 2nd. When once found to be so, what was the variety? 3rd. The persistence of the catamenia.

1st. The diagnosis at first sight was extremely difficult. Nothing like pregnancy was suggested. She was perfectly regular, and lost a good deal at each period. A week before admission she had been unwell and it stopped suddenly. This looked more like hæmatocele, and the fluctuating character of the tumour and displacement of the uterus, the os being high up and behind pubis, were all confirmatory of this idea. The semifixed character of the tumour, in the absence of any inflammatory fever or rigors (which might have, if present, led to a

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2nd. Was it possible to make out the variety? My patient was not very bright and her account not very distinct. I could not gather that it had grown on either side, or that the pain was localised in any one part of the belly in particular. But even if this had been fully established, it is not a sufficiently conclusive test, because, as clearly proved by both Mr. Spencer Wells and Mr. L. Tait, Kussmaul, Graily Hewitt ('Obstet. Trans.,' vol. vii, p. 169), where we have a double uterus and pregnancy in one uterus only, the palpation would afford identical evidences. Then the examination made gave no clear indication of such localisation, although that part of the tumour most get-at-able, and in which fluctuation was most distinct, was on the left side. At the early stage, besides, of the pregnancy any conclusion from palpation or sound likely to guide us in our judgment, was not present to assist diagnosis.

3rd. I wish to dwell, under the head of diagnosis, especially upon the catamenial function. In this case our patient was quite regular, the flow large, and she had been unwell one week before admission. With a view of determining this point, I collected thirteen cases, in which a note was made as to this function (although in very many accounts there is no allusion whatever to it). The records of our 'Transactions' are sufficient to show that menstruation often occurs in extra-uterine cases, and so complicated the diagnosis. Dr. Barnes has stated that ("Discussion on Dr. Truman's case," 'Obstet. Trans.' vol. vii, p. 168) rupture of the cyst, *i. e.* previously to the shock and collapse which mark the epoch of rupture, it was usual to observe a discharge of blood per vaginam. But as shown by Dr. Graily Hewitt such a flow may occur quite independently of rupture. In Mr. Lawson Tait's case ('Med.-Chir. Trans.,' vol. lvi), the catamenia having been absent five months then recurred. In Dr. Dragge's case ('Obstet. Trans.,' vol. ii, p. 254) catamenia came on irregularly three times from January to the end of March, then a deal of hæmorrhage

supposition of cellulitis), were also in favour of the existence of hæmatocele. If the tumour were fibroid at all, which view the copious periods in some measure countenance, the presence of fluctuation proved it to be fibro-cystic at least, but in these cases as I have elsewhere shown, copious catamenial flow is unusual. It might certainly have been ovarian, but we had no history of such a growth on either side. The one remarkable symptom that arrested our attention was the excessive vascularity and blue colour of the parts. Now I wish particularly to insist on this hyperæmic state, as it is not usually much dwelt upon.

The blue colour is of course a well known symptom, but in this case the large quantity of vessels in the vagina and rectum, especially the latter, was remarkable. The suspicion of pregnancy thus suggested was quite confirmed by the appearance of the breasts. I do not find it stated in my notes, but if my recollection serves me right, we could not hear the placental souffle. The os, which is said in cases of extra-uterine pregnancy to be patent, was so displaced behind the pubis that the finger could hardly reach it, so this patent state could not be made out, and the sound could only be introduced with difficulty. By it, however, the cavity of the uterus was found to be enlarged, and in extra-uterine pregnancy, as remarked by Mr. L. Tait, before absorption of the amnion has taken place, this enlargement is almost invariably observed. In 57 cases I collected, I find that in it was said to be enlarged in 50. In only 6 is the fact not noted, but stated to be of normal size in 1. Upon the existence of morning sickness, which is stated by Rigby to be absent in cases of extra-uterine pregnancy, I find no mention. The symptom in any case could not have been very marked, nor was that peculiar whining voice, insisted upon by Dr. Rigby also, present. There was however, pain at lower part of pelvis, so commonly observed in these cases, and forcing pains. These symptoms, however, have nothing characteristic in themselves of extra-uterine pregnancy. I have met it in many hysterical cases and in senile endometritis.

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at end of June till August 6th, when she became regular, the child ultimately being removed by operation between April and May. In Mr. H. Grace's case, in which rupture occurred and death eighteen days afterwards ('Obstet. Trans.,' vol. ii, p. 49), although there was an arrest of catamenia for six weeks, she had menstruated copiously a fortnight before. In Dr. Playfair's case ('Obstet. Trans.,' vol. vii, p. 1) a discharge came on at the time she expected her labour, and lasted thirteen weeks. After that it came on irregularly. Patient ultimately died from increasing debility. In Dr. Walker's case, ibid., 1, 99, extra-uterine pregnancy recurring at the usual period and believed to be a case of lapsed labour. A month after menstruation occurs and does so continuously for ten years; then she becomes irregular, and after some hectic symptoms, bones pass away per rectum. In Mr. Ross Jordan's case, in which gastrotomy was performed, catamenia ceased four days before marriage; but then she became very soon pregnant. Five weeks later the catamenia were present. After some inflammatory venous symptoms (of which she had nearly died), expecting her confinement in September, she had a show for one day, fourteen days after a copious flow for three days. Six weeks after she married she was again in labour, and had for three or four days a sanguineous discharge. Again, in Mr. Lucas Worship's case of tubal pregnancy the patient last menstruated August 18th to 25th very freely. Catamenia returned a week after and lasted three days, free from clots. Since then to October 6th had had a continual pinkish secretion. This patient died October 29th from rupture. In Mr. Jessop's case, where the woman, moderately regular, became pregnant on January 7th, 1875, wrenched herself on March 3rd with a washing machine; was very ill for a long time, quickening on May 14th, and removing to Corkridge Convalescent Hospital on the 18th; she returned home eight days after. On three or four different occasions a discharge from the vagina took

place, extending once over a day or night. This patient was cured by gastrotomy performed August 14th.

In six other cases collected for me by my cousin, Mr. Curtis Routh, and given in the appendix of this paper in brief, in one, Dr. G. Cheesman's, menstruation was scanty, at intervals of five or six weeks, and mostly in clots, with an occasional offensive greenish discharge from the uterus.

In another of Dr. J. Hall Davis', complicated with vomiting and jaundice, a red discharge, as far as could be gathered from the size of fœtus at the post-mortem two months after, appeared about the second month of pregnancy and a clot of blood passed.

In another of Dr. Ramsbotham's, which also proved fatal, menorrhagia more or less persisted. In another case of the same physician, where gastrotomy was performed and recovery followed fourteen months after conception, about the ninth month periodical uterine pains and bloody discharge with stringy matters passed per vaginam. In a case of Dr. J. H. Davis, during nearly all the patient's illness she lost more or less blood per vaginam, and bits of flesh (blood clots), sometimes blood mixed with matter (mucus). This case proved fatal after gastrotomy. In Dr. Nuckwick's case, when about six months pregnant, a sanguineous vaginal discharge occurred, although the pregnancy continued for two months longer.

In my own case the last menstruation was connected with the expulsion of the decidua. And indeed it seems most probable, as suggested by more than one author, that it is this forcible expulsion, or it may be a futile attempt to bring about this expulsion, which determines in many cases what seems at first sight to be a catamenial flow. In fifty cases given in the appendix of extra-uterine pregnancy, the decidua was found in utero in twenty-four. In one case it was a false one. In the remaining twenty-five no mention of its existence at all in utero is given. Dr. Robert Lee has shown ('Med.-Chir. Trans.,' vol. xli) in an able paper on the subject that it sometimes exists

around the ovum, and not in utero at all. In the fifty cases before mentioned it was so present in nine and one doubtful case. In the forty remaining cases no mention is made of decidua round the ovum. In cases where no decidua existed in utero it is probable the catamenia will always, however irregularly, occur, particularly as in by far the largest majority of them the uterus is enlarged and congested, and a sanguineous flow in such instances, is to be expected. In the fifty, as before noted, the uterus is distinctly stated to have been enlarged. In six only no mention made of enlargement, and in one only was it of normal size. In one of these cases a decidua was believed to have been discharged. This last circumstance we were assured had occurred in my case, for we had the opportunity to examine the membrane carefully after its ejection and identifying its characteristic structure.

I think, however, as regarding the question of diagnosis, we are warranted in concluding from the above-given summary of cases that in extra-uterine pregnancy the catamenial function (or at least a sanguineous discharge resembling it) frequently occurs, but that it varies in intensity, time and quality. It does not, however, afford any very certain indication in the diagnosis, except in so far that when it occurs with an enlarging abdomen and other signs of pregnancy it must be regarded as a very suspicious symptom. Possibly if in the history of these cases, which are generally and, very unfortunately, very bare of particulars, more details were given, we might find its characters more pathognomonic.

I shall conclude with a few words in relation to treatment. I think most of us are agreed that such cases once diagnosed should not be left to die a miserable and sudden death if it can be prevented. But I am not speaking so much of those cases where the child has assumed such proportions that the case needs and calls for gastrotomy, but earlier cases, in which the fœtus is small; I should say from three to five months. I think we have two proceedings open to us, both of which are comparatively

safe to mothers. One is tapping the amnion by the aspirator, the other is the injection of morphine into the amnion.

1st. Tapping the amnion by the aspirator. Three cases of success from this course are recorded in the 'Transactions.'

This view seems in a measure advisable from the very structure of the envelopings of an extra-uterine ovum. In the discussion which took place in Dr. Meadows' paper "On the Treatment of Extra-uterine Gestation" ('Obst. Trans.,' vol. xiv, p. 320), Dr. Snow Beck, who was a very accurate and close histological observer, called especial attention to the tension observed in the contained fluid caused by the contraction of the contractile tissue of the tube. "This tension, which was described as resembling the tension of the membranes during a contraction of the uterus, would be difficult to account for unless the sac contained some contractile tissue, which was probably derived from the Fallopian tube, as no development of the cellular or fibrous tissue in the neighbourhood would produce the effect described" (ibid., p. 320). It was remarkable in this case that although during the removal of the placenta, Dr. Meadows states, "the hæmorrhage was so severe that at one time it was feared the patient would not survive the operation, as soon as the placenta was detached all bleeding ceased, and although," he adds, "it seems doubtful whether it was due to the detachment or whether it resulted from the syncopal condition of the patient consequent upon the loss of blood," it should be noted it is exactly what takes place in ordinary labours, at least very frequently—a gush of blood preliminary to the detachment of the placenta, and what is painfully visible in cases of Cæsarean section, where the placenta is anteriorly placed prior to a full uterine contraction, on its entire removal. The effects in both are analogous, and probably, therefore, are due to the same cause. In extra-uterine cases (excepting ventral cases, perhaps) this very power of contraction in the sac points to the advantage likely to

accrue by puncturing the cyst and letting out the amnion, which would thus leave the sac to contract upon the fœtus, and so lead to its death and subsequent absorption, and we in this respect should follow nature in the examples she has given us. Dr. Greenhalgh's case succeeded in which a small trocar was used. But Dr. B. Hicks' case ('Obst. Trans.,' vol. vii, p. 96), where a small trocar was also used and produced inflammatory complications within the cavity, as proved by the post mortem, was killed thereby. There is, therefore, a risk in using trocars, but that risk is greatly lessened when we use an aspirator, whereby all danger of introducing air in the sac can be so easily avoided. I have now performed this operation a good many times in cases of hæmatocele, ovarian dropsy, abscesses in the ovary, and other pelvic cysts, and hitherto without any untoward circumstances, and I think as a *modus operandi* it is thoroughly safe, and to be much recommended.

Remains yet the question—Shall it be made per vaginam, rectum, or abdomen? I imagine the last would not be employed if either of the latter two plans can be effected, except in a very thin patient, and where the tumour projected very forcibly against the abdominal parietes. In early cases of extra-uterine pregnancy our enemy lies in close relations with the pelvic organs, and it is here he must be attacked. As I have elsewhere stated, I prefer the rectum, because, should any discharge subsequently take place from the puncture and prove offensive (and sometimes it is so offensive as almost to be unbearable), the patient, by reason of the closed sphincter ani, is at least saved from this annoyance. When the puncture is made per vaginam, the vulvular opening of which always remains patent, the tendency at every expiration is to suck up air, as I have elsewhere also shown, and which readily passes through any opening made in the vagina which is not immediately closed. It is true we may have a little tenesmus when the opening is made per rectum, but this is a small comparative evil, and readily relieved

by remedial measures. However, the opening per rectum is often more easy, the sac being more readily felt through it, all that is needed being care to avoid wounding an hæmorrhoidal vessel.

There is yet another method in which we can treat these cases. Although recommended by Dr. Barnes, I do not think the profession has sufficiently appreciated its value. It is that of Prof. Friedrich's, referred to in the discussion on Dr. B. Hicks' paper "On a Rare Form of Extra-uterine Fœtation," published in the seventh volume of our 'Transactions' (p. 99), by our esteemed associate, Dr. Rasch (Virchow's 'Archiv,' xxix, 3 and 4). In this case of Friedrich's four injections of a solution of morphia into the tumour through the vaginal wall allayed the great pain and arrested the further growth of the fœtus, which disappeared by resorption. The *rationale* of such a procedure is very obvious. Young infants are very obnoxious to the influence of opium, and the younger they are the more deadly the influence. The plan appears so simple, and so free from risk, that the wonder is it has not been more frequently followed.

There is a last point in this case upon which I wish to remark. After the first tapping, the position of parts was very singular, the cyst on the right side having moved and occupying the left side. This is an interesting point, and worthy of note, because it would lead us to make full investigation as the case proceeds. In Dr. B. Hicks' case, before mentioned, we had also two sacs (ib., p. 97, vol. vii). So far, the lesson learned is to look for such complications. But, having found it, I think I was wrong in not tapping my patient a second time. Had I done so her life might have been saved. But I acted on the results of what appeared an exhaustive consultation. With the post-mortem appearances before us, however, there can be no doubt that our united wisdom proved inadequate to the emergency.

APPENDIX A.

George Cheeseman, 'Lancet,' vol. ii, 1861, p. 250.

E. S—. For eleven months after, beginning with pain in lower abdomen. Size of abdomen increasing and pain continued. Menstruated scantily at intervals of five or six weeks, mostly in clots. Occasional discharge of an offensive greenish liquid from uterus. At the end of the eleven months fœtal heart sounds heard; became very ill, with sickness, feculent vomiting, and constipation, and died December 9th.

Post mortem.—Full grown fœtus in abdomen and left Fallopian tube. Uterus size of child's head; walls $2\frac{1}{2}$ inches thick; lining membrane congested.

Case of Dr. J. H. Davis, 'Med. Times and Gaz.,' vol. ii, 1852, p. 552.

Patient æt. 32. About July 16th, 1852, had vomiting and jaundice. During one of the vomiting attacks a red discharge per vaginam occurred, and a clot of blood passed. 26th.—Feculent vomiting; abdominal pains, with tympanitic resonance; tenderness; obstinate constipation. Circumscribed tumour in right iliac fossa. *No* enlargement of uterus. Died August 3rd.

Post mortem.—Intestines highly congested. No peritonitis. Left Fallopian tube contained fœtus, four months. Both ovaries and uterus healthy. No liq. amnii. Died from intestinal obstruction.

Cases of Dr. Ramsbotham, 'Med Times and Gaz.,' vol. ii, 1852, p. 481.

Patient multipara. Suffered more or less from menorrhagia from end of May, 1850, till August 4th, some time before which date felt decided movements of fœtus. Movements continued till end of June, 1851. Had spasm

pains in abdomen like labour, lasted twenty-four hours, then entirely disappeared, movements of child also suddenly ceasing. No return of suffering. Feb. 24th. *Vaginal examination.*—Uterus larger than normal (unimpregnated), empty. Tumour occupied abdomen, looking like natural gestation at full period. Tumour increased in size; tapped on June 9th; sixteen ounces dark matter evacuated; much relieved. In January health began to give way, and she died, April 25th, of low fever and diarrhœa.

Post mortem.—Full grown putrid fœtus, shut out from peritoneum by "cyst of false membrane." Nothing was found like placenta, cord, amnion, or chorion; investing membrane putrefied.

Mrs. J—, æt. 28, married ten years. Not pregnant before. Thought herself pregnant end of July, 1834. Felt child. In April (nine months) had periodical uterine pains. Bloody discharge, "with stringy matters," per vaginam. Continued increasing in size. Operated on fourteen months after conception. Child removed by gastrotomy. Recovered.

Case of Dr. Hall Davis, operated on by Mr. Lawson, reported in vol. ii, 1877, p. 48, of 'Lancet.'

Sarah A—, æt. 27. Catamenia came on December 24th, 1877, when seized with pain in lower part of abdomen; during nearly whole illness losing more or less blood per vaginam and "bits of flesh" (blood clots?). Sometimes blood mixed with "matter" (mucus?). Rigors on 12th, 13th, and 14th June. June 15th.—Has had frequent epistaxis in the morning. *Vaginal exam.*—Finger passed into uterus; cavity enlarged, but empty; mucus tinged with blood came away on finger. Gastrotomy on 25th. 26th.—Offensive discharge from vagina. Death.

Post mortem.—Uterus a little enlarged, cavity ditto. *No decidua* found, "probably thrown off in discharge."

Dr. Nuckwick's case, 'Brit. and For. Med.-Chir. Rev.,' vol. i, 1856, p. 272.

Patient æt. 24. Menstruation regular to September, 1854. In October seized with violent abdominal pains, menstruation ceased, and she increased in size. At the end of March, *i.e.* six months after cessation of menstruation, seized with peritonitis. Swelling of abdomen about the size of a six months' pregnancy. Fœtal heart distinctly heard. Pains and a sanguineous vaginal discharge now occurred. Four days after fœtal heart no longer heard. Six days after abdominal pain ceased, but the swelling appeared greater. On May 22nd, *i. e.* eight months after first cessation of catamenia, and two months after appearance of vaginal sanguineous discharge, sound used. The abdominal swelling had shrunk to size of a large pot. Patient recovered.

This case was considered by Dr. Nuckwick to be one of tubal pregnancy, with fatty degeneration of the fœtus.

APPENDIX B.

References.	Size of uterus increased.	Decidua present.	
		In utero.	In ovo.
William Hunter, Phil. Trans., 79 ...	1	1	—
Dr. J. Clarke, Society for Improvement of Medical Knowledge, 1, 1793 ...	1	1	—
G. Langstaffe, Med.-Chir. Trans., 1816 ...	1	—	—
Dr. Elliotson, ibid., 1824, vol. xiii ...	1	1	—
Robert Lee, 2 cases, Medical Gazette, 1839-40	1	—	1
No. 2	1	—	1
Chaussier, 1814	—	—	1
R. Lee, ibid., c. 3, Med.-Chir. Trans., xli, p. 143	—	—	1
Case 4, ibid.	1	—	—
Ibid., Case 5	—	1	—
Ibid., p. 146	1	—	1
Professor Van der Kolk, ibid., p. 146 ...	—	—	1
St. Bartholomew's Hospital, No. 13 ...	1	1	—

References.	Size of uterus increased.	Decidua present.	
		In utero.	In ovo.
St. Bartholomew's Hospital, No. 14 ...	1	1	—
Ibid., No. 18, pp. 147-8	1	1	1
Guy's Hospital, Case 2517, p. 149 ...	—	—	—
Ibid., Case 2517[20]	1	—	—
Ibid., Case 2517[30]	1	1	—
Ibid., Case 2517[60]	1	1	—
Ibid., Case 2517[61]	1	1	—
Ibid., Case 2517[65]	1	1	—
Ibid., Case 2517[70]	1	1	—
Ibid., Case 2517[80]	1	1	1
Ibid., Appendix, p. 150	1	—	1
Greenhalgh, Obst. Trans., v, p. 154 ...	1	1	—
J. Marshall, described by Hewitt, ibid., p. 155	—	1	—
Dr. Hayden's Case, ibid., p. 280 ...	1	1	—
Dr. B. Hicks, Obst. Trans, vol. vii, p. 95 ...	1	—	—
Ibid., ibid., vol. ix, p. 59	1	—	—
Dr. Day, ibid., vol. vi, p. 8	1	—	One said to exist, but denied by Hicks.
Mr. Grace, ibid., vol. ii, p. 51	1	—	1
Dr. Harley, ibid., vol. i, p. 101	Full of external fibroids	False	—
Dr. Playfair, ibid., vol. vii, p. 1 ...	Normal size	—	—
Dr. Truman, ibid., vol. vii, 164 ...	1	1	—
Dr. J. H. Davis, ibid., vol. xii, p. 331 ...	1	1	—
Dr. Martin, ibid., vol. xi, p. 57	1	1	—
Dr. Meadows, ibid., vol. xiii, p. 268 ...	1	—	—
Ibid., ibid., vol. xiv, p. 313	1	—	—
Dr. McCallum, ibid., vol. xv, p. 249 ...	1	1	—
Dr. Scott's, ibid., vol. xv, 144 ...	1	—	—
Mr. Lucas Worship, ibid., vol. xi, p. 211 ...	1	1	—
Mr. Jessop, ibid., vol. xv, p. 264 ...	1	—	—
Lawson Tait, Med. Times and Gaz., 1873, p. 119	1	—	—
Mr. Rose's Case, described by Dr. Oldham, Guy's Hosp. Rep., ser. ii, vol. ii, p. 448	1	—	—
Dr. Oldham, ibid., vol. iii, p. 269 ...	1	1	—
Mr. Harvey, by Dr. Oldham, ibid., vol. iii, p. 272	1	1	—
Dr. F. H. Ramsbotham, Med. Times and Gaz., 1852, p. 481	1	—	—
Dr. H. Davis, Lancet, vol. ii, 1877 ...	1	Probably discharged	—

References.	Size of uterus increased.	Decidua present.	
		In utero.	In ovo.
Frank Ayles, ibid., vol. xi, 1871 ...	1	—	—
G. Cheeseman, ibid., vol. ii, 1861, p. 250 ...	1	—	—

50 cases:—Uterus enlarged in 41; 1 full of external fibroids; 1 normal size; 6 size not mentioned; in 1 a decidua was believed to have been discharged. Decidua in uterus mentioned in 24; 1 case of false decidua; in 25 no mention. Decidua round extra-uterine ovum in 9 cases; 1 doubtful; in 40 no mention.

The PRESIDENT, in commending the valuable nature of Dr. Routh's paper, asked him why he had limited his discussion of possible methods of treatment to puncture and injection of morphia? Dr. Routh could not be ignorant of Dr. Thomas' well-known successful case, in which a similar tumour was opened from the vagina by the galvano-caustic knife, a plan of treatment which seemed to him particularly valuable in such a case, inasmuch as the cautery not only obviated any risk of hæmorrhage from division of large vessels, but the sac could be thus easily emptied of its contents, leaving the placenta *in situ*, and subsequently thoroughly drained and washed out with antiseptics. Moreover, in these days of antiseptic surgery, it might be that in the future the loose cysts might be completely removed by gastrotomy.

Mr. DORAN, who had made the post mortem on Dr. Routh's patient, and prepared the specimen now exhibited, remarked that on opening the abdominal walls he found the upper part of the cyst rising to a considerable extent above the brim of the pelvis, and bulging into the right iliac fossa, the rent whence proceeded the hæmorrhage being on the upper and posterior aspect of this portion of the cyst. Had gastrotomy been performed on the advent of the dangerous symptoms the cyst could have readily been reached from above, and the laceration detected without much difficulty. The fœtus might then have been removed, and the bleeding vessels of the margin of the wound in the cyst secured by the cautery, and the remains of the umbilical cord ligatured, like an ovarian pedicle. The rent in the cyst might, lastly, have been sewn up. Or, if the operator believed that the placenta ought to come away, a drainage tube might have been passed through the wound down to the bottom of the cyst, and antiseptic injections introduced till the placenta could be separated. Drs. Keith and Bantock had had brilliant results from drainage when much more mischievous morbid structures had been, from compulsion, left in the pelvis. Extirpation of the cyst would, in this case, have been impossible, as its lower part

was firmly adherent to the viscera and the great nerves and vessels of the pelvis. The altered relations of the structures in the neighbourhood of Douglas's pouch would have made any operation from below very dangerous. The intestines completely covered the upper part of the cyst in front, and would most assuredly have been wounded if the aspirator had been used above the pubes.

Dr. BANTOCK, limiting himself to the discussion of the form of extra-uterine pregnancy presented by Dr. Routh's case, was of opinion that the vaginal operation had little to recommend it in consequence of the impossibility of ascertaining, with any approach to accuracy, the exact nature of the case by means of a vaginal examination. Nor did he think the less formidable operation of aspirating the sac (through the vagina) even advisable, because of the risk of wounding some important vessel or vessels, as appears to have happened in the case under discussion. If aspiration was resolved upon it should be done from above. But he was of opinion that gastrotomy would prove more satisfactory, as by its means the exact nature of the pregnancy could be made out. If the fœtus should happen to be in the outer part of the tube the sac might even be pediculated, and the pedicle could be ligatured or treated like that of an ovarian tumour. If near the uterine end the sac could be opened, the fœtus could be removed, and complete drainage could be effected, after securing the edges of the opening to the lips of the abdominal wound, with every probability of success. He was at a loss to know on what theory, as to its action, calomel had been combined with the opium in the medicinal treatment of the patient after the aspiration.

Dr. ROBERT BARNES thought that it might be considered established that in cases of extra-uterine fœtation not exceeding the size reached in the present instance, the operation from below was preferable. There were no other structures intervening at the bottom of the cyst, and the antiseptic method might be applied even here. Nature often took the course of evacuation by the rectum, and he considered it preferable to puncture in the same direction. It was a question whether it was desirable to go further—make a free opening and remove the fœtus, leaving the placenta. If this case was left to nature its course was tedious, and many dangers were incurred. These might be avoided by early interference, but there was considerable risk in this course also. In one case, after puncturing for the second time a small ovarian tumour from below, he had seen death occur from peritonitis. Another patient, now under his care, after puncture of a dermoid cyst, was ill with pelvic peritonitis and suppuration.

Dr. GODSON disagreed with the author as to the innocuous effects likely to follow tapping per rectum. Fecal gases were

more deleterious than atmospheric air, and these readily found their way through the aperture made by a trocar. Overlooking this, Dr. Godson had tapped from the rectum, by means of a small trocar, a cavity which consisted of the uterus and vagina thrown into one by distension from menstrual fluid, due to imperforate hymen. The contents were allowed to discharge themselves gradually through the canula until the entire swelling had disappeared; the canula was then removed. A day or two afterwards the distension was as great as ever. An incision was then made in the hymen, and a large volume of fetid gas escaped, the character of which was unmistakable. This, in Dr. Godson's opinion, overthrew the arguments laid down by Dr. Routh in favour of tapping per rectum.

Dr. GALABIN said that, with reference to the inference to be drawn from Dr. Routh's case as to the question of treatment, it was of interest to recall the statistics of the late Dr. Parry, who in his monograph had collected a far larger number of cases than any other author. From a review of these he drew the conclusion that, although the treatment by simple puncture might seem at first sight to be so promising and so innocuous, yet it was more dangerous than either leaving the case to nature or evacuating the cyst by a more free opening, a large majority of recorded cases so treated having ended fatally. Within the last few months two cases of treatment by vaginal section had been reported to two obstetrical societies in America. In the first, although the thermo-cautery was used, it failed entirely to avoid the risk of hæmorrhage, since the knife penetrated the placenta, which was attached at the bottom of the cyst. Bleeding was stopped, however, by complete detachment of the placenta, and it appeared that the patient might have recovered, but that previous rupture of the cyst had taken place, allowing the hand to enter the general peritoneal cavity. In the second case, in which the placenta was left and antiseptic injections used, the patient recovered.

Dr. ROGERS said from the discussion that had taken place this evening on Dr. Routh's interesting and valuable paper, it was evident that the treatment of extra-uterine pregnancy was beset with very grave difficulties, and much uncertainty as to the safest and most prudent course to adopt. No doubt one case would greatly vary from another, and each case would require very serious consideration to decide what plan of treatment would be the wisest, best. Dr. Rogers had in the course of a very long experience met in his own, and in the practice of his friends, many such cases, several of which had happily and safely terminated, as in the case recently brought before this Society by Dr. Priestley. No doubt the "do-nothing treatment," or leaving the case to the remedial efforts of nature, had in many of these cases resulted in ultimate cure. Yet all knew from past

records; and from this case, that frequently it was otherwise, and when such cases as Dr. Routh's came before us accompanied by constant and incessant suffering, with prospective fatal termination, it was a serious thing to say we could do nothing but give morphia or other soothing medicines. After tapping by aspirator Dr. Routh's case felt great relief when left by Dr. Routh under his care. Some little time after Dr. Rogers found the sac refilled, and all her symptoms of so grave a character that he purposed using again the aspirator needle, but as he was on the point of doing so his colleague, Dr. Greenhalgh, opposed it so strongly that he postponed the operation till Dr. Routh's return. This delay resulted in the bursting of the sac and death of the patient from hæmorrhage. From consideration of this and other cases, Dr. Rogers came to the conclusion that, looking to the great success which in skilful hands and with antiseptic treatment had followed gastrotomy, he would advise the opening of the abdomen, removing fœtus without placenta, putting in draining tube into sac, and treating in the usual way; but if the case allowed, there being a pedicle and no strong adhesions, this might be ligatured, and the whole ovum removed successfully.

Dr. CHAMBERS thought it easy "to be wise after the event," and to offer suggestions as to what should, as well as what should not, have been done. Without, however, being hypercritical he thought that when Dr. Routh was called to his patient in the middle of the night and found her collapsed, he might reasonably, after she had somewhat recovered, have entertained gastrotomy as a justifiable alternative. Experience has clearly shown that of all desperate operations, performed under the most unpromising and adverse conditions, gastrotomy holds out the most promising chances of success. He had performed such operations successfully under very depressing and unfavorable circumstances. At the same time he well understood the gravity of such operations, as well as the responsibility attaching to the operator with respect to the position of the blood coagulations mentioned by Dr. Wiltshire; it must be always remembered that when blood is effused it is in a fluid form, and will, of necessity, follow the ordinary laws of gravitation, hence the position of the body at the time the effusion takes place will decide the position of the blood coagulations found in this case after death.

Dr. ROUTH thanked the members of the Society for the instructive discussion on his paper, and hoped, if he did not refer to each speaker by name, they would not consider it due to want of respect, but because their questions had already been replied to by other Fellows in the discussion itself which had followed. Dr. Playfair had advocated the use of the galvano-caustic knife through the vagina, but Dr. Galabin's reference to the case so operated by Dr. Parry answered the suggestion. In one case death nearly followed the operation from hæmorrhage, and if, in

his (Dr. Routh's) case, even a small *aspirator* needle had produced so much bleeding as to call for him to stop it, what might have followed if the knife had been used. Moreover, in these cases we never knew beforehand where the placenta was, and, as in cases of Cæsarean section, we might directly impinge upon it and produce alarming hæmorrhage. Early gastrotomy was also hazardous, and so long as the fœtus, as in this case, was within the true pelvis—even with antiseptic surgery, as recommended by Mr. Doran, the position would make gastrotomy very hazardous; and notwithstanding Dr. Bantock's required surgical state was present, viz. that the intestines above the extra-uterine pregnancy were not fixed above it, it would be too dangerous and too difficult to get at to justify the operation. Dr. Barnes, on the contrary, had advocated opening from the vagina and extirpating all fœtus and placenta at once. But supposing adhesions existed all round how could he be sure contraction of the sac would take place at once? and if not, the wound must be discharging blood or pus, perhaps for weeks, as offensive matters. Then Dr. Meadows' successful case, where the placenta was left *in situ*, so far as it went was opposed to Dr. Barnes' method of proceeding. Dr. Godson had advised puncture per vaginam in preference to that per rectum, as fœtid gases might enter in the latter case. This was true if a *trochar* were used, because by the larger openings left, as did occur in Dr. Braxton Hicks' case, before referred to, and where death resulted, fœtid gases could enter, or air leading to the production of offensive discharges; but not so if the *aspirator* was used and the cyst afterwards washed out with an antiseptic solution, which was his (Dr. Routh's) invariable practice, as in this case. The opening was too small and completely closed, and here it could not be found after death. This reply was also an answer to Dr. Galabin's objection, while Dr. Murray's experience confirmed the excellency of the practice. Dr. Bantock had stated the treatment must vary with the case and age of extra-uterine pregnancy. If it could be felt above pubis he would prefer gastrotomy. Indubitably it was so in a case of ventral extra-uterine pregnancy, but he (Dr. Routh) thought so long as it was mainly contained within the pelvis, he preferred attacking it from below. He gave calomel more as a preventive because it kept up the secretions. Dr. Rogers advised the placenta to be left *in situ*. In this he fully concurred, but he did not believe in this case the cyst refilled, but of the two the emptying of one caused the other to come down and take the new position. Dr. Wiltshire had asked why, when he (Dr. Routh) had diagnosed the bursting of the cyst, he had not at once opened the abdomen and proceeded to remove the extra-uterine pregnancy and thus arrested the hæmorrhage. Had he done so in the woman's collapsed state, and she had died, the death would surely have been brought to

his door. Outsiders had an unfortunate habit of picking holes in a neighbour's pocket. Moreover, to act at 4 a.m., without antiseptics ready, and any assistance, and in the darkness with candles only, is not always easy. He agreed with Dr. Wiltshire in looking to the general pulsation of the growth as a pathognomonic sign of extra-uterine pregnancy. He concurred with Dr. Chambers in the belief that if an extra-uterine pregnancy were bound down by adhesions, the blood, not being able to gravitate within the pelvis, if effused, was an argument in favour of gastrotomy; but it was equally so and a stronger reason for acting from below, as there would then be no risk of wounding the peritoneum in Douglas's pouch, so as to admit effused matters within the peritoneal cavity.

MAY 7TH, 1879.

W. S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—97 Fellows and 30 visitors.

Books were presented by Mr. George Brown, Dr. A. Courty, Mr. E. M. Jenks, and Dr. Charles West.

The following gentlemen were admitted Fellows of the Society:—Philip Addis, L.R.C.P. Ed. (Iver); Alban H. G. Doran, F.R.C.S.; Charles L. Evershed, M.R.C.S. (Arundel); George J. McKeough, M.B.; and J. Knowsley Thornton, M.B., C.M.; and William Blundell Willans, F.R.C.P. Ed. (Great Hadham), was declared admitted.

The following gentlemen were proposed for election:—Arthur Guy Elkinton, M.R.C.S.I., Surgeon-Major Gren. Guards, George Henry McSwinney, M.D., Queen's Univ. I. (Brook Green); Wm. L. Reid, M.D. (Glasgow); and William Watter, M.A., M.D., Manchester.

Dr. PERCY BOULTON, showing an extra-uterine fœtation, said—At our last meeting I was reminded by Dr. Routh's interesting paper on extra-uterine fœtation that I had a specimen at home which has never been shown or recorded, though it has been in my possession about fourteen years.

It appears to have been such an excellent case for treatment by gastrotomy, that I think it is worth showing as evidence in favour of what I think must become the recognised treatment in most of these cases when diagnosed;

moreover, owing to the rarity of extra-uterine fœtation, I think all cases are worthy of record.

Having kept no notes at the time, I can only remember seeing for the first time a woman of about thirty dying from shock, which I attributed to internal hæmorrhage. Pregnancy had never been suspected, and I thought the probable cause was a ruptured aneurism.

Post-mortem examination revealed this tubal pregnancy, death being the result of hæmorrhage from the ruptured cyst, much clot lying over the peritoneum. Had the case been diagnosed and gastrotomy been performed, it would have been an easy matter to ligature the parts between the cyst and uterus, and remove fœtus, placenta, cyst, &c., entire, with a good chance of saving the patient's life.

Dr. WILTSHIRE was glad Dr. Boulton had shown this specimen, as it well illustrated a point he had raised at the previous meeting, having reference to the treatment of the tubal forms of extra-uterine fœtations where death was threatened by internal hæmorrhage from bursting of the sac. In Dr. Boulton's case it was evident that had gastrotomy been performed it would have been possible to ligature the tube, and the patient might thus have been saved. No doubt the diagnosis was surrounded by difficulty, but, when it could be made at all clear, he thought it was the duty, in these days of successful abdominal surgery, of the attendant to interfere, rather than to stand by helplessly and see the patient die without an attempt being made to relieve her.

Mr. ALBAN DORAN observed that the chief feature of interest was the large size of the cyst, considering its proximity to the uterus. As a rule tubal cysts rupture very early in pregnancy when so near the womb, and museum specimens show that in cases of tubal gestation, where rupture does not occur till after the fourth or fifth month, the fœtus is nearly always lodged in a dilatation of the Fallopian tube near its fimbriated extremity. The position of the cyst in Dr. Boulton's case was peculiarly favorable for its extirpation had circumstances made its removal during life practicable.

Dr. BRUNTON presented to the notice of the Society a specimen of a rare form of fœtal monstrosity, that known to teratologists as congenital ventral hernia. This kind of deformity is usually met with in the complete condition, or

ectopia in which the viscera lie entirely exposed; in this case there was a covering of peritoneum.

The delivery occurred in the practice of his friend Dr. Hurford. The child was the offspring of healthy parents; the mother, a multipara, had borne eleven children, of which only three were perfect, the others either being premature or having a congenital deficiency, such as harelip or cleft palate. There was no history of syphilis. The child lived three days after birth, and was of full time.

UNILOCULAR CYST INVOLVING BOTH OVARIES AND WITH BOTH FALLOPIAN TUBES ATTACHED.

By J. Knowsley Thornton, M.B., C.M.,
SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.

This cyst I removed from a married woman, æt. 41, at the Samaritan Hospital, on April 23rd. I have thought it worth bringing to the notice of the Society because it is a rare form of cyst, and because when met with it is apt to render the operation for its removal difficult.

The large cyst is one of a class not uncommon. A true ovarian cyst but practically unilocular, this form of cyst commonly has in its interior a rich growth of a peculiarly hard white papilloma, and is most common in young women. In the present case it appeared when the woman was young, though she has carried it to the present time. The histology, and to some extent the pathology, of these so-called unilocular cysts has been admirably worked out recently by Drs. Malassez and de Sinety, of Paris, and when their papers are complete, I think we shall have to modify considerably the present views as to the pathology of ovarian tumours. The peculiarity in this tumour is that it includes both ovaries and carries both Fallopian tubes on its surface. I have twice before recognised this condition after removal

of the tumour, and once while removing it, making with this four cases. All have occurred in my own practice, and they are the only cases of the kind which I have seen in over 500 tumours which I have examined. In the specimen I now show you the two tubes are readily distinguished, losing themselves towards their fimbriæ on the surface of the cyst. It is not easy to define the two ovaries. In one of the other cases I could find no trace of the second ovary. In another both ovaries were distinct though one appeared more intimately blended with the cyst-wall than the other, and in the fourth case, the appearance was in favour of one ovary having become secondarily adherent to a cyst of the other; but, accepting this view as the correct explanation of similar cases, it is very difficult to see how the tube also becomes in its whole extent so intimately blended with the outer layer of the cyst wall. In the case in which I could only find remains of one ovary, though both tubes were attached, the union between the cyst and this ovary was so close that when torn apart Graafian follicles were left projecting about in equal numbers from the remains of the ovary and the cyst.

In the present case I did not recognise the fact that both tubes were attached until I examined the cyst after removal, but I could not find the other ovary when feeling for it to see if it was healthy. The right side of the pedicle was closely attached to the right pelvic brim, so that both tubes were tied up closely together there; the twisting of the uterus must have been gradual, as, before I began the removal of the cyst, the enlarged fibroid uterus occupied its normal position, and the pedicle, though broad and extending behind the uterus in a way which puzzled me, did not pass at all to the left side of it.

When these tumours are extensively adherent, I know of no condition which renders the operation more puzzling, it is almost impossible to find out what one is handling, and what is the relation of parts.

When I first saw the patient from whom this tumour was removed, I thought the pelvic condition so unfavorable

that I advised her to try one tapping; the fluid was very clear and pale, like that of an extra-ovarian cyst; sp. gr. only 1008, but the microscope at once revealed the presence of papilloma. As I had tapped very carefully and was sure no escape into the peritoneum had taken place, I felt justified in advising her to wait until it began to fill again. I removed 32½ pints in October and there were 24½ pints at the time of operation, so the refilling was tolerably rapid. The patient has made a quick recovery; the temperature never rose above 100·4, the quickest pulse was 88; the bowels acted on the sixth day, and this morning, fourteenth day after operation, she was sitting up fully dressed when I entered the ward at 9.30.

ON THE USE OF FORCEPS AND ITS ALTERNATIVES IN LINGERING LABOUR.

By Robert Barnes, M.D., F.R.C.P.

The theme which I have been invited by the Council to bring before the Society for discussion is the following:—"On the use of the Forceps and its Alternatives in Lingering Labour."

It was obviously necessary to confine the discussion within certain definite boundaries, not alone in order to avoid irrelevant and wasteful debate, but also as the most essential condition for arriving at clear and useful conclusions.

And when we refer to "conclusions" as the result of our discussions we shall not aim at the framing of conclusions which shall be final or absolute, or have the force of law. We could not engage in a more vain and injurious undertaking. Science is in her very essence progressive. Freedom from arbitrary dogmas is the condition of her life. It is that freedom which impels or invites every one of us to try this, like every other scientific question, by

the patient and candid observation of nature, acknowledging no mere tradition or authority. The true function of a society is to gather together, and then to diffuse, knowledge, to encourage independent inquiry, to survey from time to time, by the light of mutual reflection, the positions attained, and thus to seek sound guidance in the application of our knowledge to our practical duties.

Ever so superficial a retrospect over the history of the forceps will show us that more than once the use of this instrument has been defined in the most absolute and inflexible terms. And although arbitrary laws may have met with wide obedience, many men have always refused to be fettered by them. Some of these rebels may have carried their contempt against authority too far; they may have run into contrary, even licentious extremes. But they are, at any rate, entitled to this praise, that they have kept alive the spirit of independence, have compelled us to think over again, to doubt whether the laws we had been summoned to submit to were the expression of absolute wisdom.

At this moment practice differs widely. And this difference is not so much the result of the different teaching of the schools as it is of local and individual accidents. Side by side we see men using the forceps once in every nine or ten cases, or oftener still, and others using it, perhaps, once in a hundred cases, or even less; and this under conditions that offer no explanation of the difference in practice. Looking at the actual practice of the day, we may thus see repeated and continued the lessons of history. From the epoch of the invention of the forceps nearly the same diversity of practice has existed. Indeed, during the early days of the forceps—speaking of this country, the birthplace of the forceps—it seems probable that the forceps was more commonly employed than it was thirty or forty years ago. Now and then the use has become so free as to take the character of abuse; and then an outcry has arisen, followed by reaction and restriction. Thus, preceding and during the time of William

Hunter, Osborne, and Denman, instrumental interference was frequently had recourse to unnecessarily, and unskilfully we may assume, since these illustrious men thought it right to exert all their authority in discouraging the use of instruments, and in inculcating blind faith in Nature as the better way. So earnest was their zeal, so commanding was their authority, that men were driven back into the opposite extreme of supine inaction. Rules were laid down, and widely obeyed, which too frequently allowed parturient women to drift into danger, injury, and death. Thirty years ago, even, the law of Denman was taught that enjoined us to wait until the child's head had rested for six hours on the perineum before resorting to the forceps; and this policy of procrastination was scarcely mitigated by the associated rule that "no case was to be esteemed eligible for the forceps unless the ear of the child could be distinctly felt." Many of us may remember this sort of teaching. Its influence may have been beneficial in repressing reckless and unskilful operators. But, as might be expected, the neglect of the forceps has entailed the very dangers for which it was denounced. The casuist may balance the degrees of culpability of the man who, seeking to help a woman, injures or destroys her, and of him who, trusting alone to hope, lets a woman sink into perilous exhaustion and death. The result to the victim is the same. And we, weighing the men in the scales of science, may see more hope for humanity in the enterprise of the man who acts than in the blind helplessness of the man who does nothing. The first may improve—he may acquire judgment and skill; for the man who is tied hand and mind to a policy of waiting there is no hope.

So far is the question of the application of the forceps from being settled, that when we come to examine it critically we find ourselves brought face to face with some of the most difficult problems in obstetric practice.

The limitation of our inquiry to "the use of the forceps or its alternatives in lingering labour," implies the exclusion from our consideration:

1. Of those cases in which acceleration of labour is indicated by convulsions, by hæmorrhage, by other complications, as syncope, dyspnœa, apoplexy.

2. Of those cases in which the child is in danger from prolapse of the umbilical cord or other causes independent of protracted labour.

In studying the question before us, we are naturally drawn to institute a comparison between the results to mother and child, as to injury and death, under the two opposite practices of free resort to the forceps, or to its alternatives, these alternatives being understood to comprise—(1) simple inaction, or expectancy; (2) ergot or other oxytocics; (3) the fillet or lever; (4) compression of the uterus, or other manœuvres, not instrumental.

This, the statistical method, which seems to promise so much, is not free from objection. It is, in the first place, not easy to obtain facts that are fairly comparable. And even could this postulate be secured, it would not follow that we could decide for or against the free use of the forceps because the injuries and deaths of mother and infant were more frequent under resort to the forceps or to its alternatives.

This brings us to the definition of the state which demands or justifies interference. How shall we define this state?

Several reasons concur in leading me to quote the rules of Collins, the younger Ramsbotham, and George Johnston.

Collins gives the following as the conditions for using the forceps:—"Generally speaking, so long as the pulse remains good, the bowels and bladder act well, the soft parts remain free from severe pressure, and uterine action continues so as to cause the presenting part to descend ever so slowly, the patient having no pain in the abdomen on pressure, or local distress, the child at the same time being alive, as indicated by the stethoscope, I am satisfied no attempt should be made to deliver with instruments, and that he who does so wantonly exposes both mother

and child to danger. . . . The necessity alone of freeing our patient from impending or present danger should induce us to resort to instruments."

Ramsbotham says: "If pains are subsiding gradually, or have disappeared, strength failing, spirits sinking, countenance anxious, pulse 120 or more, tongue coated, dry, brown, or raspy, two or three rigors, tenderness on pressing abdomen, green discharge, preternatural soreness of vulva, heat and swelling of vagina, head locked, vomiting, hurried breathing, delirium, or coldness of extremities, *then delivery must of necessity be effected,* and we should be acting most injudiciously to allow the case to proceed until the four last-named symptoms appear without relief being offered. . . . But so long as the uterus is contracting with energy, the strength and spirits good, the countenance natural and cheerful, pulse under 100, tongue and mouth moist and clean, no vomiting or rigors or heat, swelling or tenderness of parts, so long as the head retreats in the absence, and advances in the presence of pain, provided there be any progress in the labour from hour to hour, so long there can be no necessity for instrumental aid."

George Johnston states the case as follows (1872):— "We have come to the conclusion, and our established rule is, that so long as nature is able to effect its purpose without prejudice to the constitution of the patient, danger to the soft parts, or the life of the child, we are in duty bound to allow the course of labour to proceed. But as soon as we find the natural efforts are beginning to fail, and after having tried the milder means for relaxing the parts or stimulating the uterus to increased action, and the desired effect not being produced, we consider we are justified in adopting prompter measures, and by our timely assistance relieve the sufferer from her distress and danger, and her offspring from an imminent death."

Strictly analysed and compared, it will be found that the rules for interference as laid down by Collins, Ramsbotham, and George Johnston, representing, as they do,

three distinct epochs and schools of practice, are all but identical.

How men recognising the same principles could diverge so widely in practice is a curious study. It constitutes the very kernel of our discussion.

Collins, in the Rotunda Hospital, in the years 1826 to 1833, used the forceps or lever once in 607 cases. Johnston, in the same hospital, in the years 1868 to 1875, used the forceps once in every 10 or 11 labours.

Somewhat intermediate in time between Collins and George Johnston, and practising under conditions somewhat different, stands Francis Ramsbotham, who, with David Davis, may fairly be said to have held the foremost position during their time in this metropolis for judgment, experience, and skill. Ramsbotham applied the forceps, in the work of the Royal Maternity Charity (1828 to 1850), once in 671 labours. There is no doubt he would have used the forceps more frequently had the cases all been under his control from first to last, as is the case in a lying-in hospital. But he could only act when called for by a midwife. Thus the midwife had exhausted the alternatives; and we may take the residuum in which the forceps was applied as representing practically the proportion of cases in which resort to the forceps was not a matter of election, but of necessity. Now, if we compare Ramsbotham's experience with Collins's, we find both using the forceps in public practice—the one in a hospital, the other in domiciles—at nearly the same rate of frequency. This lends strength to the conjecture that, other alternatives being duly tried, the proportion of cases that imperatively demand the forceps does not exceed 1 in 500. If this *primâ facie* case be supported by evidence that the damage and mortality endured by mothers and children compare favorably with the results of more active practice —say with Dr. Johnston's—then we may be led to conclude that in very many cases Dr. Johnston resorted to the forceps when there was *no necessity* for the operation,

that is to say, when the alternatives, as waiting or ergot, would have effected delivery with equal safety.

This does not carry the condemnation of Dr. Johnston's practice, for the question would still remain, after the establishment of the fact, that the ultimate results to mother and child were similar under the practice of Collins, Ramsbotham, and Johnston, whether the forceps would not have been better in many of Collins's and Ramsbotham's cases than the alternatives which were trusted to. For example, there can be little doubt that in many cases under Collins and Ramsbotham waiting was carried to the verge of danger, whilst in Johnston's cases the dangers, immediate and remote, of waiting were averted, and the individual and aggregate suffering in actual pain was immensely curtailed. We must not forget that the forceps is not simply an operation of necessity, but that it is pre-eminently an operation of election.

Passing from public practice to private practice, we find in the first volume of our 'Transactions' the records of two men of the highest stamp—the one, Robert Dunn, who practised in London; the other, W. H. Bailey, who practised in Thetford—that is, in a rural district. It may safely be assumed that both these men conducted their practices conscientiously and skilfully, and no one will doubt that they have recorded their experience faithfully. During twenty years, ending with 1850, Dunn used the forceps twenty times, or once in 190 cases. He "often used ergot." He had ten cases of craniotomy. He says: —"Not in one single instance has tedious or difficult labour proved fatal to mother or child." But two deaths after craniotomy must be considered to qualify this statement.

Bailey, during the fifty years ending in 1859, used the forceps, it is presumed, very rarely. He does not specify how often. He had only two cases of embryotomy.

Comparing Dunn and Bailey, we see, as might be expected, a marked contrast between the obstetric histories of a town and of a rural population. Dunn had a

far larger proportion of difficult cases. Dunn's embryotomy cases were 1 in 400, whilst Bailey's were only 1 in 3200. Dunn's maternal deaths were 1 in 150 nearly, and Bailey's 1 in 430 only. It is a legitimate conjecture that Bailey and Dunn worked on very similar rules. The difference in their practice and in their results is almost certainly due to the difference in the subjects they had to deal with. Another caution in the use of statistics.

In discussing our question, we are met by the necessity of drawing a line between what McClintock called the "high" and the "low" forceps operations. The low operation takes simply those cases in which the head has entered the pelvic cavity; the high operation applies to those cases in which the head is seized at or above the brim. The distinction is imperative. The low operation may be accomplished by the short or single-curved forceps. It is usually a very simple proceeding. The presence of the head in the pelvis implies, generally at least, that there is no obstacle from disproportion to be overcome, that the resistance of the cervix uteri and vagina has been overcome, and that there remains little or nothing beyond the resistance of the vulva. We merely want a little *vis à tergo* to complete expulsion. In this conjuncture some will prefer ergot, some will prefer forceps. My own decision has long been in favour of the forceps. I hesitate to affirm that the use of ergot is wrong; but the following reasons for preferring the forceps are to my mind sufficient:—1. Since the publication of Hardy and McClintock's report of their researches at the Rotunda, which showed that unless the child was born within a short time after the action of ergot it was very likely to be born dead, I have turned my attention to this point, and have seen abundant confirmation of the accuracy of their observations. 2. The action of ergot upon the uterus is uncertain. You want a certain amount of uterine action. You give ergot, and the desired result may ensue. But it may not. You may have too much, or too little. In the first event you have evoked a Frankenstein whose brute violence you can

neither subdue nor regulate. The force which should be delicately adjusted to the resistance is in excess. And then you have to fear the very dangers of lingering labour —rupture of the uterus, other injury to the soft parts, and the death of the child—which you called in the ergot to avert. I prefer to enlist an ally which will do exactly what I want, and no more. 3. In a large proportion of cases of arrest of the head in the pelvis, the arrest is due to malposition of the head—for example, to occipito-posterior positions. The occiput turns up under the sacral promontory, and then the driving force propagated along the child's spine tells in a false direction, tending to roll the head more over on its transverse axis. It tends, in short, to revolve in extension around the promontory as a centre, instead of round the symphysis pubis. The driving force is wasted. Fortunately it often ceases or moderates. It is utterly unscientific, even dangerous, to goad it by ergot. The forceps is the true and effective help. It not only supplies the wanting force, but gives that force its proper direction, under conditions in the highest degree adapted to secure the wellbeing of mother and child.

I have now set forth what appears to me to be the first point of discussion—namely, the choice of the forceps or of its alternatives, when the head is arrested in the pelvis.

I apprehend that there is not much room for disagreement upon this point. It is practically solved. The low operation is very generally in use. And provided reasonable discretion dictate the line of acting, and fair skill be used with a good instrument, this operation will often save the mother much present suffering, will in many cases lessen or remove the risk of injury to the soft parts, lessen the risk of septicæmic fever, and promote the safety of the child. It is very easy indeed to apply the forceps in cases of this category unnecessarily. But, on the whole, it may be questioned whether, at least in dealing with women of weak fibre, nursed in luxury, more harm may

not ensue from habitual inaction than from over-readiness to operate.

In discussing the uses of the forceps, we are naturally led to inquire what its powers are—what it can do?

The forces of the forceps are—(1) tractile; (2) leverage; (3) compression or moulding of the head.

The short forceps and the long forceps differ widely in the degrees in which they enjoy these forces.

The short forceps has but moderate tractile power, a limited leverage power, and scarcely any appreciable compressive power, apart from what it derives from the external compression of the soft parts upon its blades.

But the long forceps possesses all three powers in a high degree. 1. It admits of tractile power greater than that of the natural expulsive power. 2. Its leverage power is greater, and may be often effective at a point beyond reach of the short forceps. 3. Its compressive power may be almost indefinitely increased, according to the construction of the instrument.

Now, since all these forces, or equivalents of them, are exerted by Nature, it is but logical to employ them in cases where Nature fails. In a well-devised and executed forceps-operation something is gained from every one of these forces. The best forceps will be that which enables the operator to utilise all these forces in due harmony. Thus, excess of traction is avoided by the aid of judicious leverage and compression. Excess of compression is avoided by judicious traction and leverage. Excess of traction and of compression—involving, the one, risk to the mother, the other, risk to the child—both admit of important mitigation by external compression and pushing, imitating the driving force of Nature. And thus the highest degree of safety is secured to both mother and child. To throw away these powers possessed in the highest degree by the long forceps is to abdicate a vital part of one of the most beneficent instruments that science has ever put into our hands.

I have only a word of caution about the use of leverage

in the high operation. It must be applied with care and moderation. Its advantages are not so manifest as in the low operation. But those who declaim against leverage absolutely must be reminded that to avoid it altogether is a physical impossibility. The great difficulty in practice is to find the equilibrium between the powers of the forceps and the resistance to be overcome.

We now come, then, to the question of the *high operation*, the great point upon which the contest turns. Here problems comparatively unknown in connexion with the low operation come into consideration. In the low operation we are mostly concerned with the second stage of labour, when the expulsion of the child is partly accomplished. When the high operation is in question we have commonly to act during the first stage of labour, when the child has made little or no progress, and therefore when in many cases the cervix uteri is imperfectly expanded. The head has to be sought and seized at or above the pelvic brim. This of course demands a long and double-curved forceps. There is a greater complication of factors; far more judgment and skill are required in deciding upon and in carrying out the operation. *What are the conditions which demand or justify the high operation?* I will first cite the plea of Johnston: "I became," says Johnston, "an advocate for the more frequent use of the forceps . . . . from having witnessed on many occasions the direful results arising from allowing the labour to continue for hours unrelieved. The painful effects of such a system became evident in numerous instances of inflammation and sloughing of the vagina, ruptured uterus, and other accidents, too often ending in fatal consequences." He especially dwells upon the injurious effects produced by long pressure of the head on the soft parts in cases where the liquor amnii has escaped at the commencement of labour, and the danger that arises from the head pressing on the expanded cervix uteri before the os is fully dilated. He asks: "Why should we permit a woman to undergo hours of torture?

. . . . Why should she be allowed to waste her strength and incur the risks consequent upon the long pressure of the head upon the soft parts, the tendency to inflammation and sloughing of the vagina, or the danger of rupture of the uterus, not to speak of *the poisonous miasm* that emanates from an inflammatory state of the passages, the result of tedious labour, and which is one of the fertile causes of puerperal fever . . . . attributed by some to the influence of being confined in a large maternity ?"

All this argument applies to the low operation; but, tested by Johnston's practice, it applies chiefly to the high operation.

Johnston is brought into direct collision with those authorities who teach that during the first stage of labour little mischief from pressure of the soft parts (we of course, exclude cases of disproportion), and little other mischief is to be apprehended during the first stage of labour; in short, that the term "lingering labour" has no practical significance until we arrive at the second stage. If we accept this doctrine the question is solved; our discussion is at an end; Dr. Johnston and those who advocate the high operation are out of court, or nearly so. But is this sentence just? Must we go back to the narrow dicta of William Hunter, Osborne, and Denman? Must we declare that Smellie, Perfect, David Davis, Francis Ramsbotham, to say nothing of our predecessors and contemporaries in Europe and America, who so frequently resort to the high operation, are all wrong? We should surely repudiate such a sentence, and none the less because many of us would be included in the same condemnation.

It may be at once admitted that there are cases of lingering labour during the first stage— that is, before the cervix uteri is fully expanded, and before the child's head has entered the pelvis.

One order of such cases may be quickly dismissed. Those in which the uterus is more or less paralysed or disordered in its action by excess of liquor amnii, by the presence of twins or too large a child, or by extreme rigidity

of the cervix uteri. The first difficulty is often got over by simple puncture of the membranes. But not seldom the evacuation is not complete enough; the head drops upon the unexpanded os uteri, and blocks the way of escape like a ball-valve, and labour is suspended, "lingering." In such cases I have obtained quick release by introducing one blade of the forceps. This lifts the head off the cervix, forms a channel for the flow of the ponded-up waters, and calls out the reserved diastaltic function. If the uterus and system have been so far weakened as not to respond to this tentative measure, the second blade is introduced, and the proper action of the forceps is invoked.

Secondly, labour also may become lingering in the first stage because the *child is dead.* When the child has been dead some time, it has lost its resiliency, and driving force acting upon it tends to compress it into a ball, instead of propelling it onwards. Craniotomy would be the proper alternative here. But until we know the child is dead, the forceps is preferable. *Monsters* commonly cause lingering labour for analogous reasons.

Then we come to a third order of cases in which the liquor amnii has sufficiently escaped, and in which the head rests upon the brim, or is only partially engaged within the brim, and the cervix uteri is imperfectly expanded. We may here call to mind the general fact that the full dilatation of the cervix is effected by the eccentric pressure of the bag of membranes and of the child's head, and that consequently we do not expect to find full dilatation until the head can engage in the pelvic cavity. It is true that in some cases of very protracted labour, the uterus, shortening itself under long-continued efforts, may open, whilst the head is delayed above the brim. But the fact remains generally true that so long as the head is above the brim the cervix is only imperfectly expanded. Hence it follows that to apply the forceps to the head above the brim the blades must generally be passed through an imperfectly dilated cervix. We must recognise this fact because it is a direct infringement of the old canon never

to use the forceps until the os is fully expanded. We see in this fact also one broad distinction between the low and the high operation.

What are the cases, the liquor amnii having escaped, the head resting on the pelvic brim, and the cervix imperfectly expanded, which call for the forceps or its alternatives? We may clear the ground by saying that the first alternative to try is patience and reasonable time. Ergot is open to even graver objection in this case than when the head is in the pelvis. Without condemning the practice of those who do use it, I may be permitted to repeat that I myself would not use it. Delay at the brim may be due to minor degrees of disproportion, and this is not always easy to diagnose. Ergot, therefore, may be injurious as well as uncertain.

There is another order of cases in which the head is delayed at the brim which involves the conditions of lingering labour—I mean cases of overhanging belly and uterus, in which the abdominal muscles fail to keep the long axes of the uterus and child in due correlation with the axis of the pelvis. Here the forceps is especially useful, even though the cervix be not fully dilated. The alternative is turning. Both are facilitated by delivery in the dorsal posture and by compression of the abdomen.

We may now apply the test, What is lingering labour? For it will scarcely be denied that if the signs of lingering labour are manifested whilst the head is above the brim, we are as much called upon to interfere as when the same signs are manifested, the head being in the pelvic cavity. And unquestionably these signs may occur. But they will occur much more rarely than at a later period—that is, during the second stage of labour. To state the proposition is almost to prove it. Fatigue, exhaustion, is a question of time. It is not necessary then to insist that a patient's strength may take her easily through the first stage, and yet be inadequate to carry her through the second. Just as a pedestrian may do his first ten miles without distress and yet break down during the next lap. It may be true

that the first stage presents the greater difficulties, but then these are encountered by fresher powers.

Let us take it then as granted that the high operation is sometimes called for. But experience, as recorded by Collins, Ramsbotham, and a host of others, compels us to affirm that the *necessity for this operation* cannot be frequent. The frequent resort to the operation, then, must rest for its chief justification upon its *utility*, and in utility is included *safety*. Apart from the cases of necessity, when is the operation useful? And what are its dangers? I mean those pertaining to the operation itself.

I will first take the question of danger, assuming, of course, reasonable skill. The forceps has to be introduced through an imperfectly expanded cervix. Dr. Johnston admits danger. He is careful to say, "I must here caution the practitioner that this operation is not without danger in unskilful hands, by whom it should never be attempted." I am disposed to go further, and say that this operation is not without danger even in skilful hands. The width of the fenestra of the forceps is about two inches. When both blades are applied to the head we have a globe measuring generally more than four inches in diameter to bring through the os uteri. But the os uteri may be three inches or less in diameter. We must therefore apply the blades high above the os uteri. This is generally not very difficult. I have often done it. The difficulty comes later. You begin extraction. If the os is easily dilatable, and sometimes it is so, it is dilated after a process closely resembling that of nature. The head-globe is made to open it. But it frequently happens that the os is not so easily dilatable. The natural order and process of labour has been disturbed, partly it may be by the difficulty which made it lingering, and partly by the interference of the operator. This disturbance is very apt to entail, if not spasmodic rigidity, at any rate a passive unyieldingness of the cervix. Then, what happens if you put on traction? The whole uterus and child are dragged down together some way, and sometimes very far towards

the pelvic outlet. The blades of the forceps divergent with the head between them, will not come through the narrower os. Traction under these conditions must often be continued for a long time—an hour or more—before the head will come through. And during all this time the pressure upon the inner surface of the lower segment of the uterus, and upon the thin edge of the os uteri is very great, sometimes more than it will bear with impunity. Some amount of bruising is inevitable, more perhaps than it would have undergone if left to nature, and not seldom, as I know, the os uteri is torn. And this also I know, that during this artificial dilatation of the cervix, the suffering of the woman is greater than when the dilatation is effected under the natural forces. Then again the disturbance of the more natural process of parturition, the due sequence of its acts being perverted, entails after-trouble. I am sure that the disposition to retention of the placenta and hæmorrhage is increased. Now these are precisely the effects of lingering labour which we urge as our excuse for operating. What have we gained?

This objection applies with peculiar force to primiparæ. The cases must be extremely rare in which there is any danger from lingering labour in the first stage, apart of course from obstruction due to disproportion or malposition. Yet we find Dr. Johnston applying the forceps to 123 primiparæ, before the os uteri was fully dilated; in 103 there was "early rupture of the membranes." Of these, in 64 cases the head was above or in the brim; 9 of the women died, "3 from convulsions; 2 of gastro-enteritis; 1, sloughing of vagina; 1, peritonitis; 1, uterine diphtheritis: 1, distress of mind. In none of these cases at post-mortem examination was there seen any injury to the os uteri beyond the ordinary fissuring that would take place in first labour." Accept this, as I do, without reserve; still, that an undue degree of contusion was caused, that suffering and shock from the violent derangement of the process of labour were increased, and that these conditions

may have influenced the mortality, we may be permitted to suspect.

A most serious objection to the high operation lies in the difficulty of diagnosing whether the case before us is one that fairly admits of the operation being carried out. There are, for example, minor degrees of obstruction, from slight pelvic contraction, from rigidity of the cervix uteri, or from slight excess in size or want of plasticity of the child's head, which the long forceps may succeed in overcoming. We are, in fact, on the very border-line of the dominion of the forceps; and we cannot always tell, until we try, whether the forceps is equal to the trial or not. In the case of primiparæ this point is especially difficult to determine. It may to some extent be determined—first, by exploring the brim of the pelvis fairly by the hand under anæsthesia; and, secondly, by a tentative use of the forceps. We can but give it up for turning or craniotomy if it fail.

We may do much to overcome rigidity of the cervix uteri by copious warm water irrigation and the hydrostatic bags.

There is an argument which the advocates for the free use of the forceps urge, and justly urge, which claims the most earnest attention. Neglect of the forceps entails abuse of craniotomy. You wait so long that at last the child has to be sacrificed in order to save the mother. A careful survey of the annals of obstetric practice justifies this conclusion. I have drawn up a table to illustrate this point. Thus Collins' craniotomy cases were 1 in 211, whilst his forceps cases were 1 in 607; Ramsbotham's craniotomy cases were 1 in 802, his forceps cases 1 in 670; Johnston's craniotomies were 1 in 281, his forceps cases 1 in 10½. These refer to the ordinary run of public practice. But if we take the records of the most ardent opponent of the forceps, the late Robert Lee, we shall have the most striking example of what a doctrine carried out to the most rigorous extreme will lead to in practice. During an active consultation practice ending in 1863, Dr. Lee per-

formed craniotomy in 186 cases, and used the forceps in only 53. He never used the long forceps. No one can peruse the histories of his cases without the painful conviction that in many instances the long forceps might, with advantage to the mother as well as the child, have been substituted for craniotomy. It is true that this terrible experience is the record of consultation practice. He was commonly called in to cases which had drifted within the confines of danger. We must further remember that he practised during a reign of terror, which he himself had done more than any man to create, when to use the long forceps was held to be almost a criminal act. But making the most liberal allowance for all this, admitting that he would meet with a larger proportion of desperate cases than can possibly occur again, the preponderance of the perforator over the forceps will still strike us as appalling.

I may here state that my experience of the comparative resort to the forceps and craniotomy, and of the mortality of mothers and children in the practice of the Royal Maternity Charity, is very similar to that of Ramsbotham, whom I succeeded; and I think I may appeal to my successor, Dr. Roper, to support the proposition that the statistics of this great institution still bear the same evidence.

I regret that leisure utterly fails me to draw out an analysis of my forceps and craniotomy operations during an active consultation practice of twenty-five years. But I may safely venture on the statement that the forceps and turning cases greatly outweigh the craniotomies. Contrasted with craniotomy, the forceps is frequently an elective alternative operation. And so, again, turning is not seldom an elective alternative against craniotomy. To have demonstrated this I take to be one of the many claims to the gratitude of mankind, and to a place in Westminster Abbey, which Sir James Simpson has established.

Taking a scientific point of view, craniotomy should

never be the alternative for the forceps. The dominion of this sacrificial operation is totally distinct from that of the conservative operation of the forceps. To apply a recent famous political expression, we may take it that there is a "scientific frontier" against craniotomy. We have not yet secured this frontier. We may never acquire it absolutely. But it nevertheless exists potentially; and it is our duty to strive after it by constantly advancing the outposts of the forceps and of turning.

I beg leave to conclude this rapid and inadequate review of a difficult question by stating the following propositions as presenting the points that chiefly challenge discussion :—

1. In lingering labour, when the head is in the pelvic cavity, the forceps is better than its alternatives.

2. In lingering labour, when the head is engaged in the pelvic brim, and when it is known that the pelvis is well formed, the forceps is better than its alternatives.

3. In lingering labour, when the head is resting on the pelvic brim, the liquor amnii discharged, and it is known, either by exploring with the hand or by other means, that there is no disproportion, or only a slight degree of disproportion, even although the cervix uteri is not fully dilated, the forceps will generally be better than its alternatives.

4. In proportion as the head is arrested high in the pelvis, in the brim, or above the brim, the necessity, the utility, and safety of the forceps become less frequent.

5. As a corollary from the preceding proposition increasing caution in determining on the use of the forceps, and greater skill in carrying out the operation, are called for.

In most things there is a middle way. "Ni jamais, ni toujours," is a proverb full of wisdom. I cannot better illustrate the wisdom of deducing the greatest good from over-caution on the one hand and from too bold enterprise on the other, than by citing the precept and practice of Boër. This famous surgeon, having witnessed in Paris the extreme activity of French Midwifery, and in London the

Table showing relative frequency of Forceps and Craniotomy Operations, and the Mortality of Mothers and Children.

	Total labours.	Forceps cases.	Craniotomy.	Mothers. Total deaths.	Children. Total still-born, excl. premature.	Proportion of forceps to total.	Proportion of craniotomy to total.
Collins (1826–1833), Rotundo Hospital	16,414	27 (4 deaths)	79 (15 deaths)	164 (Prop. 1·0)	828 (Prop. 5·0)	1 in 607	1 in 211
Ramsbotham (1828–1850) Royal Maternity Charity ...	48,996	73 (3 deaths)	60 (6 deaths)	220 (Prop. ·41)	1822 (Prop. 3·7)	1 in 670	1 in 802
Dunn (1830–1850), London private practice	4,049	29 (0(?) deaths)	10 (2 deaths)	27 (Prop. ·67)	170 (Prop. 4·1)	1 in 202½	1 in 404½
Johnston (1868–1875), Rotundo Hospital	7,862	752 (58 deaths)	28 (7 deaths)	179 (Prop. 2·3)	470 (?) (Estimated 6·1)	1 in 10½	1 in 281

Robert Lee's Consultation Practice (London).

	Total forceps.		Craniotomy.	
		Died.		Died.
First Period, "Clinical Midwifery," ending 1848	48	11	95	14
Second Period, "Consultations in Midwifery," ending 1863	5	1	91	5
Totals	53	12	186	19

Dr. Lee's book gives 80 forceps; 32 are deducted, either because R. Lee disapproved of operation or finished by craniotomy. Thus R. Lee's forceps cases stand to his craniotomy cases as 1 to 3½.

too procrastinating practice of England, recognised the middle course as the best, constructed his forceps of medium length, saying, "Everything is not to be taken away from Nature, neither is everything to be be left to her."

The PRESIDENT.—I am sure, gentlemen, I shall be expressing the unanimous opinion of the Society if I state how deeply indebted we are to Dr. Barnes for his very interesting and philosophical paper. It is one of the most valuable contributions on the use of forceps with which I am acquainted. I shall not now trespass upon the time of the Society by making any observations, inasmuch as there are several gentlemen present who have come from a great distance, and whose views on the subject of discussion we shall all be anxious to hear. I may just say that the one point on which Dr. Barnes did not seem to me to enter so largely as the terms of the discussion might have admitted, and upon which we shall be pleased to hear the experience of any gentleman who will enter into it, is the value of uterine compression and ergot as taking the place of the forceps.

Dr. GEORGE KIDD, of Dublin, being called upon by the President, said: I would rather that some of your London leaders had risen to open this discussion. I came here far more to obtain information than to take any part in the proceedings. The subject is one which has, however, occupied a great deal of my attention, and a great deal of the attention of the Dublin Obstetrical Society, for some time past. With regard to the use of the forceps in what may be called the low operation, I believe we are all agreed that it is advisable—that it contributes to the safety of both the mother and the child. Some eight or ten years ago, when I first had the honour of sitting as President of the Dublin Obstetrical Society, I laid before the Society an analysis of the published reports of the Rotunda Lying-in Hospital, in which I attempted to show, and I still

believe I did show, that in proportion as the forceps were freely used in cases of difficult and tedious labours the deaths of the mothers decreased, and the lives of the children were saved. I scarcely think it necessary to occupy the time of the Society by dwelling upon this point. The more important point, I think, is with reference to the high operation, as it has been called. Now, Dr. Barnes has spoken to-night of the high operation, and I think he has not clearly defined it. The proposition that has been made of late days is, that we may use the forceps before the os uteri is dilated. Now, as the term "high operation" has been generally accepted as applying to where the os is dilated, but the head is still lying at the brim, on that point there can be little difference of opinion. If the os is fully, or nearly fully, dilated, and the head lying at the brim, and making no progress, I do not think any of us will hesitate to apply the forceps in that case. But when a gentleman tells us that with an os that will barely admit the top of his finger he would proceed then to apply the forceps, he throws down a challenge which I, for my part, cannot resist. The important and essential point, I believe, is this: Are we to use the forceps where there is an undilated os uteri? Dr. Johnston, who is the great advocate for the early use of the forceps, and the use of it in the first stage, lays it down as a rule that it may be used with an undilated os uteri, but it must be a dilatable os. I believe that there are many of these cases in which it is quite unnecessary to use the forceps, and that there are many in which some of the alternatives will be a great deal safer for both mother and child. You may have an undilated os, but in a dilatable condition, under varying circumstances. In the first place, it is not uncommon to meet with the os in this condition when the membranes have not ruptured. I have seen cases where a patient has been many hours in labour and the os has not yielded; the cervix is full, the membranes are unbroken, but they do not come down so as to press upon the os and dilate it. The os may be not larger than will admit the tip of

the finger. But, sir, if one were to introduce the finger into that os and detach the membranes around the cervix, wait a little time, and when a uterine pain comes on make a little gentle pressure with the pulpy part of the finger against the margin of the os, that os will dilate, and the membranes will soon come down and form a wedge-like protrusion through the os and dilate it sufficiently, and the patient will deliver herself in a short time without any interference of instruments. I believe that is a much safer and better practice for both mother and child. Then, sir, you have the os undilated, but in a dilatable condition after the membranes have broken. The membranes may break early, and the os dilate. The head comes down upon it and takes the place of the membranes, and in a little time will dilate that os. There may be delay about it, it may be a slow process, it will be a painful process, more painful to the patient than if the membranes were unbroken, but it is a process which will be accomplished in a short time, and which the obstetrician may greatly assist without the use of the forceps. If he pass his finger into that os and sweep it gradually and cautiously round, it will yield very quickly before him. If the patient has been properly treated that os will yield in a short time with very little assistance; but if she has been over-stimulated and over-heated, and encouraged to make voluntary exertions, and the head is forced violently down upon it, she may become feverish, and the parts become inflamed, and you will have a quick pulse, and a great deal of restlessness and pain. Still, I do not believe it is a condition in which it is wise for us to introduce the forceps. If we have an os uteri dilated two fifths, as Dr. Johnston has proposed to measure it by fifths, or to the extent of about an inch and a half in diameter, to proceed in that condition to introduce the forceps, to drag the head down through it, is, I believe, a dangerous practice —a practice very likely to lacerate the uterus, and to be followed by evil consequences to the mother. Whereas, by making use of some of the alternatives—letting the

patient have a warm bath, douching her with warm water, giving her a good dose of chloral, or putting her under the influence of chloroform—in a few hours, or less than hours, perhaps, the os will dilate, the parts will become soft and yielding, and the head will come down through it, and then, if necessary, you can employ your forceps with safety and with advantage. But there is a class of cases in which the head remains above the brim, and the os is not fully dilated, in which I am sure to apply forceps is a good practice and a very desirable one; where there is some minor disproportion, where you have a malposition, where you have an occipito-posterior presentation of the head, and the head does not come down upon the os to dilate it. The membranes have dilated it so far that at length they have given way, and the os remains with no pressure upon it, because the head cannot come down to press upon it. If you leave a patient to the throes of labour unaided and unassisted, you will soon have powerless labour set in; the uterus will become inflamed, the woman will become feverish, and you endanger her life. In a case of that kind I quite go with the proposition that to use the forceps is a useful and most desirable practice. I think it is not a little remarkable that in Dr. Johnston's 169 cases in which he applied the forceps before the os was dilated, he had nine deaths, that is, more than 5 per cent. of his cases died. But we all know that, as a rule, delay in the first stage of labour is not attended with such an amount of risk as this. Dr. Churchill collected the details of a large number of cases in which there was great delay in the first stage of labour; he considered no case as lingering unless it had exceeded sixteen hours in the first stage, and his cases ran from 16 hours to 176 hours; and of some 160 or 176 cases of which he collected the full notes—not selected cases, but consecutive cases—in which this occurred, there was not a single death, not a single case exhibited any evil consequence of delay in the first stage of labour. Dr. George Johnston has placed before us a large number of cases in which there was

delay in the first stage, and in his report of the lying-in hospital under the mastership of Dr. Shekleton—a report of Dr. George Johnston and Dr. Sinclair—he gives us the details of ninety-one cases of delay in the first stage of labour; and in these cases there was not one death of the mother, nor a single evil consequence of delay. Contrast that with the result of the practice of using the forceps in the first stage, where 5·22 per cent. of deaths took place. There is another point that seems to me to illustrate very strongly the danger of this practice of using the forceps in the first stage of labour, and that is, that the proportion of deaths bore a striking relation to the smallness of the os uteri when the instrument was applied. If you examine Dr. George Johnston's cases, the first thing that strikes one about them is, that all the deaths were in the first labours; there were no deaths occurring in second labours—I am speaking now of the application of forceps during the first stage of labour. Altogether he used it in 169 cases; in 59 the os was dilated only two fifths of its extent, that is to say, the os was dilated to a diameter of about an inch and a half; 44 of these cases were primiparous patients, and 15 of them were pluriparous. Of these 44, 6 died, being at the rate of rather more than 13 per cent. of the patients in which the forceps were used, the os being dilated two fifths. If we exclude two cases of convulsions which were brought into the hospital in a comatose condition, out of 42 patients, 4 women died, being at the rate of 9·5 per cent., where the os was only dilated two fifths. In his next class of cases the os was dilated three fifths. There were 71 of these cases delivered; 53 were primiparous and 18 pluriparous. Of the 53 primiparous patients, 2 died, or 3·77 per cent. None of the pluriparous patients died. When the os was dilated to four fifths, excluding a case of convulsions brought into the hospital in a comatose condition, none of the patients died. One of the primiparæ was brought in in a comatose condition, and she died, but certainly not as the result of the application of

the forceps. I say this affords very strong evidence of the danger attending this operation, and the danger is exactly in proportion to the smallness of the os at the time the operation is performed. I think there can be no doubt that we are greatly indebted to Dr. Johnston for having shown us that we can deliver a patient with the forceps in the first stage of labour. Although the practice may have been adopted by others, he certainly is the man who has taught the profession that it can be done, and he has shown us that we have, in certain cases, this alternative—that if the necessity arises we can use the forceps in the first stage, and deliver the patient with, perhaps, much greater safety than we could leave her undelivered. But to follow out the practice, and adopt it as freely and generally as he has done, would, I maintain, be attended with danger and risk to the patients. I came here, sir, for the purpose of hearing the observations of my London brethren, and I scarcely meant to occupy your time at all. We have discussed the subject very fully in Dublin, and we have, of course, taken different views; but I hope that the discussion to-night will be one that will put the matter in clear and full light, and will serve as some guide to the profession. But to let it go forward as our teaching that we may always use, or should always use, the forceps early in the first stage of labour, when there is no urgent demand for it, except the time that has passed, would, I think, be most unfortunate for society and for our profession.

Dr. THORBURN (of Manchester).—As you were kind enough to call upon those who have come from some little distance to offer first any observations upon this subject, I cannot avoid rising to thank Dr. Barnes for the very able manner in which he has placed it before us. I am very glad to find that he has not endeavoured, as some have endeavoured, to put before us in anything like a statistical or dogmatic way the frequency with which the forceps should be used in the low operation. I believe it is

utterly impossible by any amount of speaking or writing to do anything of the kind, and that the only principle upon which we can regulate our practice in this respect is to be guided by two rules. The first of these rules is never to use the forceps solely, or at all I may say, for our own convenience—to save our own time; and the other rule is, when the parts are fairly dilated, never to allow an unfortunate woman to undergo a long period of tedious suffering which we can at once mitigate by an operation that is perfectly safe. Beyond this I do not think it is at all possible to go in the way of limitation. I feel myself personally indebted to Dr. Barnes for having given the great weight of his authority to the practice of using the forceps in the high operation, when the os uteri is not fully dilated; and I do not think Dr. Kidd has exactly opposed himself to what Dr. Barnes said on the subject. No doubt there must have been a considerable amount of nonsense, I should say, talked on this subject in Dublin—I do not mean by Dr. Kidd; but if it has been suggested by any one that it should be at all a common practice to introduce the forceps into the uterus when the os uteri was only about an inch or so in diameter, and apparently for the mere purpose of dilating the os uteri, that is not what Dr. Barnes would recommend. It is perfectly within the knowledge of all of us that there are a good many cases where, owing to the pendulous abdomen, or to some slight disproportion, or to some cause which we cannot diagnose, the head remains for a very long time obstructed at the brim, unable apparently to descend; the os uteri, although moderately dilatable, is not widely dilated, and yet it is perfectly apparent that it is not the obstacle to delivery. In these cases, if you allow too long a time to elapse, you allow the head to be pressed against the lower portion of the uterus, against a segment higher up than the os uteri, and you incur very great danger in that way. I am quite satisfied that the forceps under those circumstances can be easily and safely introduced; that if once placed fairly

upon the head, if a powerful pair of forceps be used, which always means a safer pair—if it be used steadily and slowly, according to the emergencies of the case, not merely for the purpose of dilating the os uteri, but having necessarily to complete the dilatation in the progress of the descent of the head, I believe under these circumstances the os can be as slowly and as safely dilated in this way as it may be even by Dr. Barnes' hydrostatic bags themselves. This, I think, is really what Dr. Barnes wished to impress upon us, and it is a practice which I should wish to see held before members of the profession. I wish in doing so he had spoken a little more firmly and strongly against the practice of using ergot as an alternative under these conditions—that is to say, when the os uteri is not dilated. Now, we are very much assisted in such an operation as this by the use of anæsthetics and especially chloroform, and I think some little confusion has arisen in all our discussions upon operations of this kind in midwifery by our forgetting that we sometimes endeavour to compare the dicta of men who either had not or did not use chloroform with the dicta of men who have it and do use it. When we do that, we are perfectly certain to find a number of apparent contradictions which are not real, because I am quite sure it must be the experience of every one of us that in the most serious forceps operations forceps with chloroform is a very different affair from forceps without it. I do not mean, of course, to endorse the wonderful dictum promulgated at one time by one of our teachers, that we should not use chloroform in order that we may know by the pain given when we are forcing the edge of the forceps through the vagina or the uterus; but, on the contrary, I believe there are many cases suitable for forceps if chloroform be given which are not and could not be suitable for it if chloroform be not given, on account of the comparative undilatability of the parts.

There is just one other point which has struck me as of some importance, and that I do not remember ever to have seen noticed elsewhere, though I once mentioned it to a

society of our own at Manchester, which, I believe, throws some light upon the practice of the long forceps operation—that is to say, the use of the forceps at the brim, in spite of the presence of the os. The British forceps, as Dr. Barnes in his work has so forcibly pointed out, is probably quite as effectual as that used in France, and largely in America, as a tractor, and also as a lever; but undoubtedly the British forceps, as we have it in the best examples, is decidedly inferior to the French forceps as a compressor. It is chiefly in the more serious forceps operations that we do want and must have the compressing power of the forceps; and I should like to point out a very simple way indeed in which we can increase almost indefinitely the compressive power of the ordinary English forceps under such circumstances. If you apply the blades of the forceps to the head and grasp the handles—tie them together if necessary; it is not a good practice as a rule—you get then as much compression as the instrument seems to be capable of producing, and if you allow for the spring of the instrument, it is not a very great deal. But supposing that, instead of grasping the whole handles, you only fix together their extreme ends, either by a metal slip or a piece of tape, then if you can place something small between their other ends—those nearest the blades—you will, while separating the handles, bring the blades of the instrument together. The insertion of little more than the thickness of this pencil will thus closely approximate the points of the blades, and greatly increase their compressive power. I produce this result by having a hole drilled through one handle; a screw, working through this, presses against the opposite one, and obtains slowly, but powerfully, the desired separation. The instrument will be shown at your next meeting.

It is, of course, needed but seldom; but meeting, as I have done, with many cases where I have been foiled in the ordinary use of the forceps, the idea struck me that I might thus occasionally avoid having recourse to alternative operations involving the necessary destruction of

the child or, at any rate, very great danger to it. Practice has shown the correctness of this to a considerable extent. By this means on at least two occasions I have succeeded in delivering two living children, where I had otherwise given up all hopes of doing so. Although, of course, I use a considerable amount of pressure, I think this is more safe both for mother and child than the other and mildest alternative of turning in such a case.

Professor STEPHENSON (of Aberdeen).—I shall endeavour to show my appreciation of your kindness and the honour you have done us in calling upon us to take part in this debate early by making my remarks as brief as possible. It has afforded me much pleasure, certainly, to be present on this occasion and to meet with so large a number of the representatives of midwifery, not only of the metropolis, but also of the provincial towns and the sister island; and I regret that I am the only one present who may be said to represent the Scotch school of midwifery. I will, however, still claim Dr. Matthews Duncan as a representative of the Scotch school, seeing that it is not so long since you stole him from us, and he made his great reputation in Scotland. I think it is but right that the Scotch school should be represented, seeing that it has special characteristics which I think have important bearings upon this discussion. We have one characteristic which I think has this special bearing—it is, we have double the time of teaching which the other schools have. It has also been the characteristic of the Scotch school from the days of Burns and Hamilton, which take us back to the beginning of this century, to promulgate the doctrine that ineffectual contraction of the uterus should not be tolerated, that it does injury to the patient, and if you cannot help on labour you should arrest it. This has been fully borne out by the researches and teachings of Sir James Simpson, who did much to establish the doctrine that undue prolongation of labour is extremely injurious to the mother. Then, again, I cannot forget that this dis-

cussion really originated in Scotland; the keynote, at all events, so far as the early use of the forceps is concerned, was really sounded there. Although the general practitioners of Scotland may not, perhaps, use the forceps so frequently as Dr. Hamilton and others would recommend, yet I must say, from my acquaintance with the general practice of my brethren, I know, as a rule, they do use the forceps frequently and early, that they regard them as safe, and, in fact, that in practice they have for years past followed out the principles so ably laid down by Dr. Barnes, that in the forceps we have the best means of counteracting the dangers attendant upon the protraction of labour or undue disproportion of time and effect in labour. It has been argued against the position which we take up regarding the early use of the forceps; and remember, by the term "early use of the forceps" I mean the use of it whenever you are convinced that labour is becoming dangerous, not waiting to see if it will finish of itself, but whenever you are convinced of its becoming dangerous; I say the early use of the forceps has been objected to upon the ground that it is dangerous to give our authority for this practice lest it may become injurious in the hands of the inexperienced. But I have always felt that in my teaching I could not lower the principles which I promulgated to the level of the inexperienced, but rather should bring the inexperienced up to the level of the experienced. The frequency of the use of the forceps is quite a different thing from its early use, and when I hear of the forceps being used once in every five cases, or once in every eight or in every ten cases, I feel, not that they have been improperly used under the circumstances, but that the labours have not been properly attended to; that the powers of the patients had not been conserved properly, and that the attendant had failed in his previous management of the cases. It is by the previous management of the cases that we can prevent the too frequent use of the forceps; it is by thoroughly educating our men to understand, not only what is the normal mechanism of

labour, but what is the effect of the management of labour, to diagnose accurately and to know how to aid labour without instruments; and if we are to get what Dr. Barnes has happily termed a "scientific frontier" against the gross use of the forceps, it is by the thorough education of our men—not education merely in the use of the forceps, but education throughout the whole subject —the science as well as the practice of midwifery. And now, to show the bearing of my observations upon the single question of the use of the forceps in the first stage of labour before the full dilatation of the os. Here, I think, we have got into thorough confusion, from the want of relying upon what we have called the "scientific frontier." It is this. The size of the os is no criterion, to my mind, of the progress which the first stage of labour has made, or that the labour itself has made; and I think that those who oppose Dr. Johnston have not fairly represented him, and that he has placed himself at a disadvantage by taking the size of the os as the criterion when he will apply the forceps. That the size of the os is not the criterion which should be taken is manifest enough from the fact that he says he would frequently begin to use it when it is only the size of an inch or thereabout. We have still to get a good deal of knowledge before we can decide this question. There are other conditions that are taking place besides that of the dilatation of the os, and it is but recently we have become acquainted with a most important change that is going on, and that is the elongation of the cervix. We hear men in discussion continually confounding cervix and os, as if they were the same terms. The os may still remain very small, and yet the cervix may be thinned and attenuated, and the patient may be in extreme danger. What we require to do is to know what are the changes that have taken place above the os, or, as I prefer to call it, the parturient ring, for by using that term you do not confound the mere os and the cervix. I say, what you require to know and determine is the changes taking place with reference to the cervix, and not with reference to the

mere os. If we find that in cases there is evidence of the cervix being thinned and attenuated, then we are bound to use the forceps, and delay in their use may end in rupture of the uterus; and that is just the position that Dr. Johnston takes up. He has never, I think, promulgated the doctrine that you are to use the forceps in such cases as Dr. Kidd has mentioned, where the membranes are still intact. The membranes, he tells us, must be long ruptured, the liquor amnii must be away for a considerable length of time. In addition to that the head is not coming down; the os is not dilating, because, the membranes are ruptured, and the head cannot get down to dilate it, and that is just the very condition in which the cervix uteri becomes thinned out and attenuated, and there is real danger. That, I consider, is the most important point with reference to this discussion to-night.

Dr. NEWMAN (of Stamford).—I have listened with much pleasure this evening not only to the excellent paper which Dr. Barnes has read to us, but to the opinions of other gentlemen who have spoken from their special standpoint as teachers of obstetrics. If I have any claim to speak to you to-night it can be in no capacity of that kind, but simply as a practitioner of obstetrics, and that, of late years, to a comparatively small extent. Still the subject is one that has interested me for long, and if I seem to be somewhat egotistical in what I say I hope you will pardon me, and take it to mean that, speaking, as I must, from a narrow point of view, I am still trying to convey to you the impressions that have, by slow degrees, formed themselves in my own mind. Some twenty-five years ago my student course ended, and the obstetric teacher to whom I owe so much was the late past president of our Society. I need hardly say his teaching throughout was, to say the least of it, not in the direction of rashness. For a number of years his dicta held weight with me, and I am almost disposed to say now that they held weight with me almost too much. I remember well the first case of operative midwifery I

saw was the case of an out-patient of St. Bartholomew's Hospital. Labour had gone on for some long time. The operation of craniotomy was performed, and some six or seven days afterwards I had the wretchedness of having to report the escape of a large slough and the subsequent formation of a large vesico-vaginal fistula. The years that have passed since then have rather tended to make me feel that in the forceps—and I am purposely for one moment ignoring the difference between high and low operations—we have an instrument of enormous value, and one also at the same time that admits of a very much more extended use than perhaps a school of caution would be disposed to allow. A gentleman who is not a member of this Society, but who is a very great friend of my own, and enjoys far more practical opportunities than I have done or am likely to do, speaking on this matter a few days ago, said, "I think I could send you a note of the number of times per thousand in which I have had recourse to the forceps." His note ran thus: In the first thousand cases he used the forceps ten times; in the second thousand cases he used the forceps forty-eight times; and in the third thousand cases eighty times. I do not know that I have ever met with a more careful, more shrewd—I use the term advisedly—a more wise midwifery practitioner. Then, again, I think one should to-night, at all events, take full cognisance of this:—I am glad it has been so fairly laid down that no formulæ can be supposed to do more than approximate to the truths that we have before us, because it is a matter of daily experience that the same thing is looked at by two men, or by many men, in many different ways. "Quot homines, tot sententiæ." That is true enough with regard to matters of every-day life, and it is certainly true with regard to the matter of which we are now speaking; therefore, what to one man is comparative caution, would, to his neighbour differently constituted, be looked upon as, at all events, a degree approaching to actual boldness or rashness. Then, again, I think one has markedly to bear this in mind:—I do not

know how you are to separate between the local result of an injury that nature will inflict in a prolonged case of labour and the result that may follow—and no doubt often does follow—where the forceps are resorted to on account of immediate and urgent danger. One man may, with full truth, put down to the use of the instrument that which, after all, has been done before his instrument was even taken in hand. It would ill become me to attempt to criticise any statements that have been put before you; only let me again, reverting to my friend's statement, say that I think, as years grow upon us, personal caution certainly tends to increase, and that when one finds that men actively engaged in their profession in country districts make use of the forceps, conscientiously believing that they are doing the best thing for the poor women that come nnder their care, the consensus of opinion so gathered must be allowed to have its weight. Remember that we are living in the country; do not think I am going to indulge in anything like an eulogium of countrymen as compared with metropolitans for an instant; but we, at all events, are put in a very different position; we have to develop a degree of definite individuality that hardly belongs to a man who has some very much more experienced men than himself within easy call. Therefore, I simply say that in a question of this kind, I think the ill-defined conclusions at which many of us at work in the country certainly have arrived on the question before us —conclusions which agree thoroughly with the paper put before us this evening, and conclusions which I fancy each of us have for ourselves worked out—are, at all events, deserving of recognition and consideration as fitting evidence of the value of the instrument of which we have to speak, applied even more frequently and with less hesitation than the more cautious teaching of a few years past would lead one to adopt.

Dr. Malins (of Birmingham).—As the area outside the metropolis appears to be in the ascendant this evening,

perhaps you will allow me to add my testimony, in the first place, to the pleasure already expressed with which we have listened to the paper read by Dr. Barnes, and to the simple and clear manner in which he has enunciated the subject for discussion. He remarked that the practice not only of individuals will vary, but also of localities; and thus, while the teaching of one school has been the preponderance of the operation of craniotomy, with all its dreadful elements, another school has advocated the use of the long forceps; and experience has shown that the latter has given the best result both to parents and offspring. It is a singular fact that during a pupilage of six years in a very populous district, with from 400 to 500 midwifery cases in the year, I never saw a case of craniotomy. During a residence of four years in Edinburgh, part of which time I was interne at the lying-in hospital, I never saw a case of craniotomy; and in my own practice of nine or ten years I have never witnessed a case of craniotomy; showing that the necessity for craniotomy does not exist in some parishes or in the minds of some individuals as it does in other places. Reverting to the frequency of the use of forceps in practice, probably no greater impetus was given to the discussions on this subject than by the paper written by Mr. Harper in the first volume of this Society's 'Transactions' for 1860. In 1870 I read a paper before the Birmingham Branch, recording 806 cases where the forceps were used once in twenty-two cases, and during the past five years I find that I used the forceps once in every five cases, being influenced partly by the considerations of my practice and partly by the teaching of others.

In that calculation I have omitted cases that occurred in my hospital practice and in the practice of those with whom I have seen patients; and in my own practice pure and simple, during the last five years, I find I used the forceps once in five times with the best results. Dr. Kidd has stated that it was the teaching of his school that prolongation of the first stage of labour gave rise to no bad results. The opposite doctrine to this was very clearly

demonstrated by Hamilton and Burns, of Edinburgh. Hamilton was accustomed to say—and in that he was followed by Sir James Simpson—that the most disastrous results followed. You not only got wearying of the uterus and irregular contraction, but you had a greater proneness to hæmorrhage. This is a teaching which the experience of most men in active practice will fully bear out. With regard to the subject of the use of alternatives to the long forceps, with the head at or above the brim, he has shown that there are other certain indications which perhaps point to the necessity of the use of the forceps; but there are other indications which point to the expediency of other operations. There are conditions of sudden catastrophes on the part of the mother in which delivery may be effected more safely and expeditiously than by the forceps—that is to say, by turning. I will not go so far as to advocate the practice of turning in natural labour, as advocated by some, and as practised by Dr. Figg, who turned in most of the natural labours with which he came in contact, and with the best possible results; but what I do maintain is that in some cases turning may be very much more readily effected than the use of the long forceps, where the head is above the brim. In certain cases of disproportion, from the large size of the head, and slight contraction of the brim, or from the condition where the arm is placed behind the head in which no amount of direct force will overcome that difficulty, then it will be found that turning is a wiser and safer plan than the application of the long forceps. If there is the amount of truth which I assume there is in the statistics which Dr. Kidd has quoted to-night, that the mortality in high cases in primiparæ is so very large and dangerous, if the average mortality is assumed to be one in thirteen of the mothers, and one in three of the children,—then as an alternative to the use of the forceps for the high operation, the practice of turning affords a safer and better prospect to both mother and child. There are also conditions where it is not possible to have forceps

in readiness—where it is not possible to have anæsthetics and other conditions at your command which should accompany the use of the forceps; therefore in the majority of cases in which the high operation is used I maintain that the alternative of turning is as efficient, as easy, and as safe a practice as the use of the forceps.

Mr. ALDERSON.—It is with great diffidence I rise to address the Society, but I feel I have something to say, and that in justice to Dr. Barnes I ought to say it, for since I have read his book my practice has been very different and my life much happier. I have taken out the number of still-births I had when I scarcely used forceps at all, and when I used them rather frequently, and I was surprised at the number of still-births I had when I did not use the forceps. With regard to deaths, I had none in the cases where I used the forceps, and the recovery of my patients has been very much quicker. I would also like to observe, as regards the length of the labour, there is no doubt at all that the danger is according to the length in a very great number of cases, and I am quite sure that in the first few years of my practice I erred from the fear of the forceps, and when a student was as much afraid to take the forceps in hand as I should have been to amputate a leg or thigh. In 1865 I attended twenty-four cases, used the forceps once, and had two still-births; in 1866 I attended thirty-six labours, did not use the forceps at all, and had two still-births; in 1867 I attended fifty-six labours, used the forceps twice, and had seven still-births; in 1868 I had fifty-one cases, did not use forceps at all, but had three still-births; in 1869, out of ninety-two cases I used the forceps only once, and had five still-births; in 1870, out of ninety-six cases I had twelve still-births, no forceps; in 1871 I had eighty-two cases, used forceps four times, and had eight still-births. Therefore, during that period, in 437 cases I used the forceps eight times, with thirty-nine still-births. I may say I used ergot very frequently. In 1872 I attended ninety-

four cases, used the forceps ten times, and had twelve still-births; in 1873 I had eighty-nine cases, used the forceps five times, with two still-births; in 1874, out of 114 cases I used the forceps twenty-two times, and had three still-births; in 1875, out of ninety-six cases I used the forceps fifteen times, and had four still-births; in 1876, out of 100 cases I used the forceps eighteen times, and had only two still-births; in 1877, out of seventy-eight cases I used the forceps seventeen times, with only two still-births; in 1878, in seventy-five cases I used the forceps twelve times, and had only one still-birth.* Therefore, in these seven years, in 636 cases the forceps were used ninety-nine times, with twenty-six still-births. That will show you that the number of still-births is very few comparatively, if I were to exclude 1872, when I unfortunately had two or three puerperal cases. I am quite sure that there have been very many lives saved by the application of the forceps. I will not say in one or two years I did not use them occasionally when they were not absolutely required, but I used them with perfect confidence, and I used them perhaps to acquire skill. I was quite certain I was doing no harm.

Mr. WORSHIP (of Sevenoaks).—I remember taking for two months Mr. Bailey's practice at Thetford, and I am very much surprised to hear, in the account Dr. Barnes gave, what a very few times he seems to have used forceps. I remember, when I went to the first case, I was only detained two hours; but the first question he put to me in the morning was, "How was it you were so long at that case last night?" I said I was not long. He said, "Had you the forceps with you?" I said, "No;" and he told me ever afterwards to take the forceps, and certainly in the two months I was with him I applied more forceps than I have ever done in any ten years since, for every woman there expected to be delivered with the forceps. Every

* Premature births at 6th, 7th, and 8th months not included in these statistics.

woman used to say, almost as soon as she was in labour, "If dear old Mr. Bailey were here, he would soon put me out of my trouble." The consequence was, I should think, in every other labour I attended I used forceps. It was his universal practice. I do not think he ever had a dose of ergot with him, or ever used it, but it was one continuous use of the forceps. His expression to me was, "Well, if the child is up a little higher, you have nothing to do but to push the forceps up a little higher: if it is low, you can very easily deliver with these forceps." Of late years I have never used them, although he gave me a pair. When I have required forceps I have used Denman's short forceps, but of late years I must say I have used the forceps very little. When assistance has been required, I have used the whalebone loop, and have had comparatively few cases of flooding. I believe it is simply the tired uterus which floods, and not the precipitate labours, as we used to be taught in the books as being the cause of hæmorrhage.

On the motion of Dr. EDIS, the discussion was adjourned till the next meeting, on the 4th of June.

JUNE 4TH, 1879.

W. S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—88 Fellows and 20 visitors.

Books were presented by Dr. C. B. Baillière, Dr. Geo. J. Engelmann, Dr. Henrich Fritsch, Prof. F. Howitz, Prof. T. Gaillard Thomas, and the Obstetrical Society of Philadelphia.

The following gentlemen were admitted Fellows:—R. H. A. Schofield, M.B., Thomas W. H. Garstang, M.R.C.S., and Ed. W. Tait, M.R.C.S.

The following gentlemen were elected Fellows:—John Storrs Brookfield, M.D.; Charles Jas. Campbell, M.D. (Paris); John Turiname Gardner, M.R.C.S. (Ilfracombe); Walter S. A. Griffith, M.R.C.S.; Wm. Rd. Grove, M.D. (St. Ives); Thomas W. Hubbard, M.R.C.S. (Lenham); H. D. Pesikaka, L.R.C.P. (Bombay); Geo. R. T. Phillips, M.R.C.S.; R. F. Phibbs, L.R.C.P. Ed.; Frederick Ogilby Ross, B.A., M.B.; Richard Rendle, F.R.C.S. (Brisbane); George Slight, M.D.; and John Sutcliffe, M.R.C.S.

The following gentlemen were proposed for election:—Reginald Clarke, M.R.C.S. (Blackheath); Thos. M. Dolan, F.R.C.S. Ed. (Halifax); T. Wood Hill, L.R.C.P. Ed.; Wm. Beech Johnston, M.D.; Chas. Henry Joubert, M.B., F.R.C.S. (Calcutta); David Macneilage, L.R.C.P. Ed. (Spennymoor, Durham); Henry Reeve, L.S.A.; and Walter H. Montgomery Smith, L.R.C.P. Ed. (Croydon).

Dr. J. THORBURN.—At the last meeting of the Obstetrical Society I mentioned, during the discussion on Dr. Barnes' paper on the midwifery forceps, a simple method of greatly increasing, at will, its compressive power. As some of the members were interested in the subject, I now request permission to show a pair with the necessary adaptation.

The instrument, without the special adaptation, is that of my late friend, Mr. Roberton, of Manchester, with

FIG. 1.

FIG. 2.

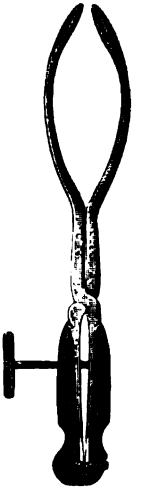

FIG. 1. Forceps used in the ordinary way.
FIG. 2. Forceps used with extra compressive power.

the handles and shanks each elongated about an inch. The increased thickness and weight rendered necessary by this increased length give it a clumsy appearance, which has nothing to do with the essential feature. The handles can, as you see, be united by a firm and simple clip at their extremities, and the ends nearest to the blades can be slowly, but powerfully, separated by a screw passing through one of them. The result is to

approximate the blades to the extent of almost touching at their points, and thus to increase the compressive power.

Without entering into the question as to how often this greater compressibility is advisable, I may say that I have with this instrument extracted two living children when I had utterly failed by using the forceps in the usual way, and where turning would have been most dangerous to the mothers and probably useless to the children.

The screw can easily be attached to any forceps, and the place of the clip can be supplied by a ligature of tape or string. The accompanying woodcut will, perhaps, better illustrate the mode of action. The adaptation has been made for me by the Messrs. Wood, of Manchester.

UTERINE OUTGROWTH REMOVED DURING PREGNANCY; PREMATURE LABOUR; DEATH FROM OBSTRUCTION OF INTESTINE.

By J. Knowsley Thornton, MB., C.M.,
SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.

This fibroid outgrowth from the uterus, weighing nearly six pounds, I removed by laparotomy from a woman aged thirty-nine, during the seventh or eighth month of her first pregnancy. The operation was performed at the Samaritan Hospital, May 22nd, 1879.

The history of the case is briefly as follows:—H. R. A—, æt. 39, married two years, was the youngest of thirteen children and of a healthy family. She enjoyed good health up to the time of her marriage, when thirty-seven years old. Her husband was a widower with children.

Menstruation had been regular and painless, the last period a week before marriage. Catamenia returned once afterwards at proper time, and then, seven weeks after marriage, she had a severe illness, which seems to have

been in some way connected with the uterus and peritoneum, but the account of it is very indefinite. She was confined to bed for three weeks and missed a period; menstruation then returned, but it became very irregular, the discharge profuse, with clots, and much pain. During the illness named above, the patient's attention was first directed to two lumps in the lower part of the abdomen. In pointing out their situation she placed a hand over each ovary. They were as large as walnuts. Both gradually increased in size, the right much more rapidly than the left, till the general enlargement of the abdomen would not allow her to distinguish them farther. Both gave her much pain. She gradually became more and more of an invalid, the abdomen getting very large, till September or October, 1877, when it suddenly got smaller; this decrease in size was accompanied by much bladder irritation without diuresis, and "sharp cutting pains in the substances." Probably the larger mass at this time descended into the pelvis. She also suffered much from dry retching.

Early in August, 1878, the catamenia ceased altogether, and vomiting after meals began, but no morning sickness. She became rapidly worse, and, six months before I saw her, took to her bed altogether.

At Christmas, her husband says, she was a mere skeleton; her voice inaudible a short distance from the bed. Vomiting and constipation were the great troubles. She improved somewhat after this, and on the 2nd of May was brought to the Samaritan Hospital from Leicester. She was much exhausted with the journey, sickness was very troublesome, the temperature high, the pulse rapid and feeble, and I feared she would die without anything being done for her. With careful diet, attention to the bowels, and a judicious use of stimulants, she gradually improved, so that I was able to make a thorough examination, and to consult with some of my colleagues about her. The first impression was that she had tumours of both ovaries, and from her cachectic appearance we feared they would prove to be malignant.

On making a pelvic examination the os and cervix were found in the condition of advanced pregnancy, and the breasts, when examined, supported this view. It was impossible, however, accurately to define the position of the uterus, as the pelvic cavity was filled with a hard, round, adherent mass, the softened cervix being felt high up in front and rather to the left side.

On the 19th of May my colleague, Mr. Meredith, and myself distinctly heard the fœtal heart, and detected the movements of the child in the mass which occupied the left side of the abdomen. There was a distinct groove between this mass and the one in the right side, and this groove was occupied down to the pubes with intestine. This led to the fear that the pregnancy might be extra-uterine, these coils of intestine forming the border of the sac. The tumour in the pelvis was so firmly wedged that I could not make out with what parts of the abdominal masses it was connected. The breasts had, since the last examination, become softer and smaller; the milk was evidently disappearing.

Looking at the condition of the patient, the progressive increase of size, and all the circumstances of the case, I came to the conclusion that there would not be a more favorable time for operative interference. Mr. Spencer Wells saw the case with me, and agreed that an exploratory operation was advisable.

The patient herself had long pressed for something to be done, and I sent for the husband and explained all the doubts and difficulties, and he consented to the exploratory operation.

The alternatives were to wait till full time and then perform Cæsarean section or gastro-elytrotomy. The objections to either course were—

1st. That I doubted if she would live to full time.

2nd. Either operation would leave her still with the tumour.

3rd. Ovariotomy during pregnancy, in the hands of Mr. Wells, had been so successful, and my own result in

the case of hydatids so satisfactory, that, expecting to find an ovarian tumour, I thought immediate operation gave her the best chance.

With regard to gastro-elytrotomy, I doubt if it could have been performed in this case. I have carefully studied the recorded cases, but I have not performed the operation, nor seen it performed, so I speak under correction.

I operated on May 22nd, Mr. Doran administering Bich. of Meth. and Mr. Meredith assisting me, the operation, of course, being performed on Lister's method. When my incision reached the peritoneum, I at once saw the intestines rolling freely about and not adherent. After opening the peritoneal cavity, and pushing them back with a sponge, I saw the pregnant uterus to the left of my incision, and a whitish solid tumour to the right. Passing my hand upwards, I found the tumour firmly adherent to the parietes and some coils of intestine and omentum, below I found it firmly adherent all round the pelvic brim, but after some trouble forced my hand down between the tumour and the rectum, behind the pregnant uterus. I then found, as I had expected, that it was not only wedged in the pelvis, but firmly adherent to the whole of the pouch of Douglas. Withdrawing my hand I hunted for the pedicle, and in so doing brought into view a healthy right ovary and tube. Passing my hand upwards, and to the left, I came upon the pedicle, short and broad, about the diameter of half a crown. I now concluded that it was the left ovary, and that its firm fixture in the pelvis had caused twisting of the enlarging uterus, so as to bring the pedicle into the position it occupied. Clearly, if the tumour was to be removed, the first thing was to dislodge it from the pelvis. This was a work of no small difficulty, but I at last separated it all round, working first with one hand and then with the other, much as one enucleates a fibroid from the uterine wall. When it was free all round I passed my hand under it and forced it out. There was a distinct groove

all round where it had fitted the pelvic brim. As it left the pelvis the rush of dark blood following my hand was so great that I feared for the iliac vessels. I immediately plugged the pelvis with a very large carbolised sponge, and, rapidly separating the tumour from its parietal and intestinal adhesions above, I applied a temporary clamp to the pedicle and cut away the tumour.

The vessels in the pedicle and in the uterine wall immediately below it were of enormous size, and I thought this would be a safer plan than transfixing at once with the large solid tumour much in the way if serious hæmorrhage occurred. I transfixed and tied up the two loops, and then, as the clamp was removed, rapidly tightened and tied them. Not a drop of blood was lost. I afterwards tied another ligature round the whole pedicle, as the tissues seemed to have yielded a good deal. The tumour had been slightly adherent to the uterus just below the pedicle, and I experienced considerable difficulty in checking the hæmorrhage apparently from the sinuses over the placental site. I eventually succeeded, by the use of fine silk with a fine ordinary sewing needle. When I withdrew the large sponge from the pelvis I was glad to find the hæmorrhage had ceased. Evidently it had only been a general venous oozing.

Before closing the wound I noticed that the stump was travelling downwards, and to the right side, as the uterus assumed its normal central position, and then, for the first time, a doubt occurred to me as to the nature of the tumour. I had not passed my hand over and to the left of the uterus, as I wished to avoid handling more than necessary, and it was now too late to do so, as I had tied most of the sutures. I knew that the passage for natural labour was clear, and thus the main object of my operation was accomplished.

The operation occupied seventy minutes, and the patient's temperature was only 96·6° when she was placed in bed.

As she began to rally from the operation there were

threatenings of labour pains, but they were stopped by opium, and when I saw her at 10 p.m. I thought her likely to go on well. Unfortunately, the nurse mistook my directions as to the giving of opium, and she was left without any for twelve hours. I was sent for at 2 a.m. and found her in labour. The child's head already well down on the perineum, it was stillborn before my colleague, Dr. Champneys, arrived. He removed the placenta. The uterus contracted well, and I left her sleeping quietly at 3.30 a.m. The temperature just before labour rose to 104·6°, and then gradually subsided to 102·0°; pulse 128; resp. 24. All seemed going well at first, then persistent sickness set in with other symptoms of obstruction of intestine, and after making a grand fight for life she died, worn out with constant sickness, on the fifth day.

The post mortem made for me by my colleague, Mr. Doran, revealed intense enteritis of a portion of the small intestine about a foot above the ileo-cæcal valve, it was paralysed, and obstructed by different folds of its coats adhering to one another. A portion of the ileum was in a similar, but less advanced, stage of inflammation. Doubtless, these were the portions of intestine separated at the operation from the tumour, and I have little doubt they were roughly crushed against the parietes when the tumour was forced out of the pelvis. The pedicle was healthy, coated with lymph, and not adherent to anything. The uterine wall was full of small fibroids in all stages of degeneration. Both ovaries were healthy; the left contained a true corpus luteum.

The only other points in the post-mortem appearances worthy of note are, the contracted condition of both kidneys, and the generally soft, friable condition of the small intestine. The former is a condition shown by Mr. Doran to be very commonly associated with large abdominal tumours, even in cases in which, as in this one, the urine appears healthy. The condition of the intestine was doubtless due to her long illness and the general mal-

nutrition, and probably was the determining cause of the fatal enteritis.

With such statistics as we have of Cæsarian section and gastro-elytrotomy, I do not think we are justified in expecting the case to have terminated differently had she lingered on till full time and labour necessitated operation under circumstances still more unfavorable than those under which I operated.

TUBAL GESTATION AND THE EFFECTS OF CHRONIC RETRO-UTERINE HÆMORRHAGE.

By Alban Doran.

This preparation shows the internal generative organs of a lady aged 31, formerly a patient of Dr. Conolly of Wood Green, under whose care she died in October, 1878. She had been married eight years and had given birth to three children. Her last child was born eighteen months before her death. She menstruated for the last time on June 20th, 1878, when in a state of depression from a bereavement. On August 28th she was seized with severe hypogastric pains extending to the left groin and remained several hours in a state of collapse. The pain subsided in thirty hours and was followed by retention of urine for about the same length of time. A week later the patient passed a complete cast of the uterine cavity. On September 10th she had a second attack of hypogastric pain. Mr. Spencer Wells, who examined her with Dr. Conolly, detected a swelling above and to the left of the vagina, and believed it to be either a tubal cyst or a pelvic hæmatocele. On October 7th she passed a bright red clot from the vagina, which she herself believed to be menstrual fluid. On the evening of October 14th, two hours after taking twenty minims of syrup of chloral, she became hysterical, then convulsed. Dr. Conolly, who was near at hand, found her, on his arrival, in a state of

complete syncope. She died within ten minutes of the commencement of the attack.

I made a post-mortem examination of the body on the second day after death. The pelvis was filled with fluid blood and with old and recent coagula. The cellular tissue of the iliac fossæ was infiltrated with blood, which fluid was not effused into the peritoneal cavity above the pelvic brim. To the left of the uterus a cyst was found, nearly three inches in vertical measurement and an inch and a half broad horizontally. It was ruptured posteriorly, and contained a fœtus three quarters of an inch long. As the fœtus is about the average size of a six weeks' embryo, the symptoms observed on August 28th, six weeks before the patient's death, may have borne a direct relation to conception. The cyst, here displayed, may be seen to be lodged in a dilatation of the extremity of the left Fallopian tube. The left ovary is small and contains a well-formed corpus luteum. The uterus is four inches long, its cavity did not, when I made the post-mortem, contain a decidua which was evidently represented by the "cast" shed at the beginning of September. The right ovary was the seat of incipient cystic disease. Its posterior part has been taken away to display the cysts which have completely occupied its interior.

In Douglas's pouch I found three thin layers of coagula. The older and deeper were decolourised, and the deepest, displayed in this specimen, looked like a second layer of peritoneum. There was no thick solid collection of clot to be found, as generally described in typical cases of pelvic hæmatocele. Yet in this case frequent hæmorrhage had occurred into Douglas's pouch, and also into the cellular tissue of the broad ligament and iliac fossæ.*

Had this patient died in a remote district, far from the aid of a medical man who knew her case, and so soon after a self-prescribed dose of chloral, death might have been attributed to that drug. Had gastrotomy been per-

* This specimen is now in the Museum of the Royal College of Surgeons, Pathological Series, No. 2718 B.

formed for the removal of the cyst, the operation would have been decidedly difficult and dangerous. For though the cyst is by no means large, it was, before dissection, adherent both to the brim of the pelvis and to the outer extremity of the ovary. Hence it would be closely related to the ovarian vessels, which could not in this case have been secured so readily as in the removal of a pedunculated ovarian cyst.

ON THE USE OF FORCEPS AND ITS ALTERNATIVES IN LINGERING LABOUR.

Dr. EDIS.—In moving the adjournment of the discussion, I feel sure I but expressed the wish of many present that we should have a still greater length of time devoted to the consideration of a subject so ably and so exhaustively introduced by one whom we are all pleased to honour. The subject itself is of great importance, not only to us as a profession, but to the public at large, and to countless thousands of children yet unborn, whose prospects of existence depend upon the management of their mothers during their time of trouble. The last published account of the Registrar-General for 1876 tells us that in England alone over 4000 mothers succumbed to the accidents or diseases incidental to childbirth, to say nothing of another thousand who died after childbirth from various diseases not referred either to childbirth or to metria in the abstract. This is no great fatality for one year, for during the last thirty years—from 1847 to 1876—an average of 3500 per annum have, alas! gone over *ad majorem partem* by accidents and diseases of childbirth; and, therefore, any consideration that we can give to this subject I am sure will not be thrown away. When we consider that we are dealing, not with the statistics of any severe disease of whose bearings we know little or nothing, but with the carrying out of a mere physiological function at the time the powers of life are presumed to be in full

working order, and where, in the majority of instances, it is under skilled supervision, I think we must reproach ourselves somewhat that the mortality still keeps up to the extent that it does. The triumph of modern surgery is its conservatism, that of medicine its preventive aspect, and unquestionably the direction in which we must labour to bring obstetrics up to a corresponding footing is to endeavour to avert the dangers and difficulties likely to beset us, and not so much to rely upon our treatment of those actual dangers when they have been allowed to come into existence. The question then before us is the prevention and management of lingering labour, especially with reference to the employment of the forceps and its alternatives. Let us take them in the order in which Dr. Barnes himself has given them. And first we take expectancy. Now expectancy is all very well, but unfortunately we leave too much to our patient and too little to ourselves. How often does it happen, when we are summoned to the lying-in room, we find, instead of our patient having been put into proper training, as is usual in the case of a race or any muscular effort which one might be called upon to go through—how often do we find her in this state: that her sleep for a long while past has been disturbed, that her digestion has been interfered with, the functions of the body not properly performed, and yet we expect that patient to go through what is after all a very trying process. But, supposing we have taken some little pains to see that our patient is brought into a proper state to go through labour, then I contend much may be done in seeing that she does not expend her powers fruitlessly. How often do we find that hour after hour and day after day goes by, and still our patient is in the agonies of child-bearing. Unfortunately it seems to me, the practice of obstetrics appears to engender in the minds of many a tendency to trust implicitly to nature—to wait and watch to see what will come of it. We prescribe largely, as has been said, the tincture of time instead of applying the essence of others' experience, and very frequently

allow our patient to get into such a condition that all our efforts are fruitless to rescue her. Therefore, in taking up a subject like this, I think our attention should not be altogether limited to the question of what by many is considered a *dernier ressort.* I consider myself that the forceps is an aid to labour, to supplement the defective arrangements of nature, if we may so say, and that we have no business to treat it as the *ultima ratio,* as it were, which is looked upon with such great dread, or was until recently. If forceps were only used judiciously and when occasion properly demanded it, I feel sure that many mothers would not only sanction it, but look forward to its help in their time of difficulty. Expectancy, as I say, may be carried too far. The moment we find the least evidence of flagging power, of any cessation of pains, any intermittance in the regular beat or any acceleration of the patient's pulse, or any general evidence of the patient having had more than she can fairly compass, I think we are bound in duty to assist the patient, and not to allow her to go on until she is in powerless labour. Then the question will arise, What shall be done? There are many simple expedients that I fear are too frequently overlooked. Dr. Matthews Duncan has shown us that, under ordinary circumstances, the mere propelling force of labour is about forty pounds; and in any extraordinary case of labour, where unusual effort is made, the propulsion exercised by the uterus or the abdominal muscles, with the voluntary efforts that the patient herself can make, does not exceed eighty pounds. Now, I think, as our President has so ably pointed out in his late systematic treatise, we have within our power a very simple expedient by placing the patient in any position—in the ordinary obstetric position on the left side or on her back, or in any position,—that by pressure upon the uterus externally we can very frequently apply an equal if not a greater pressure than that which nature herself is expending upon the process. We can in this way exert a pressure of sixty to one hundred pounds. This can be tested by a spring balance, and

determined as a simple matter. I think in many cases we may assist our patient very materially by exercising a certain amount of compression. Then, in too many cases, I feel sure the binder is too much neglected. I often suggest to a patient, "I think we will have a binder," and sometimes both nurse and patient seem to think that one is doing something very extraordinary. I appeal to those present whether in their individual experience they are in the habit of applying the binder to patients before the child is expelled. Then, supposing this simple means fails, and we have taken care that the patient is not utterly exhausted from want of nourishment or occasional rest, by giving her an hour or two's sleep, then, having exhausted those means, I think the question will naturally arise, "Shall we give her ergot or apply the forceps?" For myself I consider ergot not only an uncertain, but a very treacherous, remedy. In many instances it exerts a power far greater than we had the intention of giving, and by doing that we are simply encouraging the very dangers we are so anxious to escape—that is, rupture of the uterus, the tearing of the soft parts, injury to the mother, or death of the child by actual compression of the uterus; and I think after the nervous force that supplies the uterus has been expended for many hours in contracting the uterus, and when the powers begin to flag, it is very unphilosophical of us to attempt to stimulate it; it is far better for us to supply some extra force. That can be done, without any attempt to stimulate the already overtaxed and overworked muscular fibres, by the application of forceps. The thing is as simple as possible. Unfortunately the education at the present day, or up to the present day, has been so neglected in this department that many men do not feel themselves competent to apply the forceps, and therefore give ergot. I think this obstetric education is at the root of a great deal of misunderstanding as regards the utility of the forceps. Now we will go on a little further, "The chief contest turns upon the use

of the forceps in the second order of cases. Does lingering labour occur so as to entail danger to mother and child during the first stage of labour ?" I believe, in conjunction with many who are called consultants, that we can see things from a standpoint that others look at from a totally different bearing. I can answer this question unhesitatingly in the affirmative, that lingering labour does occur so as to entail danger to the patient. Not long since I was asked to see a patient in consultation who had been allowed to go on for three consecutive days and nights in labour. The practitioner's explanation was that the os was not dilated, and when I explained to him that the membranes had ruptured sixteen hours after the commencement of labour, he saw the difficulty at once. I succeeded in delivering the patient, and could have done so in all probability some two or three days or nights previously. Dr. Barnes asks: "Is the application of the forceps ever necessary or useful before the full dilatation of the cervix uteri ?" This is the most important of all, and I wrote to Dr. Johnston asking him if he would entrust me with any views he might have bearing on this part of the question. From his letters to me I have extracted a few remarks which I think are worth recording. He says: "I beg leave to say, in answer to the first query, I consider that the forceps are necessary and useful before the os is fully dilated, in order to avoid danger to the mother, in cases where the liquor amnii has escaped at the commencement of labour, which would otherwise accrue by the pressure of the child's head upon the cervix, particularly when it is retained at the brim, and more so where, through any cause, there may be delay. This danger may also occur where, although the membranes are unruptured, the waters remain above and the fœtus descends upon the cervix. In such cases the forceps is equally necessary, as by its timely use you prevent the liability to inflammation and sloughing, and, mayhap, complete separation of the cervix from the body of the uterus, and death, as in one instance occurred with myself, and was the reason which

induced me to adopt the method. The danger to the child, particularly when the liquor amnii has escaped, is from the frequent uterine action of the labour pains producing compression of the placenta to such a degree as to prevent the circulation of blood through the organ, and this causes the death of the fœtus. Another reason for the timely aid of the forceps is in cases of extremely nervous, delicate females, so ill able to bear the exhaustion and fatigue of the labour pains (even though they may not be protracted to any lengthened period), and from which they so slowly and with such difficulty are brought to convalescence. In such cases the early application of the forceps is attended with the most beneficial results, as I have frequently experienced. These, among others, are the principal reasons why I advocate the measure. I may add that since the expiration of my mastership of the Rotunda Lying-in Hospital in 1875, I have performed the operation in several instances under the foregoing circumstances, and have every reason to say that the more I have done so the more I am convinced of the great advantage I have derived from the practice." I do not hesitate to read these remarks, coming as they do from such an important authority, although I believe Dr. Johnston is represented here by one of his late assistants whom I hope we shall have the pleasure of hearing shortly; and I think also it is only fair to Dr. Johnston that they should be read, especially as his name has been called in question, He says further, "On looking over Dr. Barnes's paper on the use of the forceps when the os is undilated, I would wish to draw attention to a few of his observations. First, I perceive, when speaking of the application of the blades, he says, 'this is generally not very difficult.' Now, fearing that this might lead the casual reader to think lightly of the proceeding, I should wish that it be distinctly understood that although there may be no difficulty, still the greatest care should be taken and nicety observed in the introduction of the blades, lest the point may slip outside the os, and be pushed into the posterior cul de sac

and through the peritoneum, thus causing considerable injury, attended with the most dangerous consequences. Secondly, in his allusion to traction, he says, 'if the os is dilatable.' I may state that under no other circumstances is the operation justifiable. When there is not that danger, which he states, 'of dragging down the whole uterus and child,' in any way, we always found the os gradually yield under the gentle traction which, until it is expanded, should only be employed. In no instance of the 169 cases recorded did such an occurrence take place. Thirdly, speaking of the length of time occupied in the delivery of the child being 'an hour or more,' I have only to say that in our cases the duration of the operation did not extend beyond twenty to thirty minutes, except in one instance (that of a case of deformity from an exostosis at the brim), when it lasted three quarters of an hour, in a woman in her ninth pregnancy. The child, a female, weighed 7lb. 12 oz., was born alive and lived, in whose head there was a depression of the left parietal bone three inches and a half by one and three quarter inches in breadth, and three eighths of an inch in depth. Both mother and child went out well on the twelfth day. Fourthly, he mentions the amount of bruising of the soft parts and tearing of the os uteri. Now, I can say that in our practice there was none, if I except the case of sloughing of the vagina mentioned in the reports, and which was caused by the too frequent examinations made during labour before the operation. And as to the tearing of the os, in all the cases which died, on post-mortem examination the os was found not more bruised than what would have occurred in primiparæ during ordinary labour. Fifthly, in his remarks as to the 'increased amount of suffering during the dilatation,' I beg to say that we avoided it by (as was our invariable rule) putting the patient under the influence of chloroform before proceeding to operate. And with regard to the 'liability to retention of the placenta,' we had only two instances, one from morbid adhesions and one from irregular contraction; and as to its

'predisposing to the danger of post-partum hæmorrhage,' the number of cases in the 169 recorded where post-partum hæmorrhage followed amounted to four, but they were of so trifling a nature that two were quite convalescent, and able to go out on the eighth day, one on the ninth, and one on the tenth day. This last was in delicate health on her admission, so that I consider it must be allowed that in our practice, at least, there was not that predisposition. I have merely to say with what pleasure I have read Dr. Barnes's paper, and cannot conclude without expressing my gratitude to him for having taken such a considerate and rational view of the practice, feeling certain that in course of time the early use of the forceps in skilful hands, so far from it being attended with danger, will be proved to be of the greatest advantage in saving the life of both the mother and child." It is only a very few years since I brought before the Society my own views on the subject of forceps, therefore I will not occupy your time any further, seeing that we have with us several eminent Fellows who honour us by their presence, and will, I hope, take part in the discussion. I trust, however, that the question will not be discussed entirely upon the forceps itself, but that we shall consider the alternatives both as regards prevention and the management of lingering labour when it has been allowed to occur.

Dr. Lombe Atthill (Master of the Rotunda Hospital, Dublin).—It is with considerable diffidence that I take any part in this discussion, for several reasons; the principal one being that my views are so very much in accordance with those which have been already so ably and clearly put before you by my friend Dr. Barnes that I really have very little to add; but, sir, I felt that the repeated and pressing invitations which have been kindly given me by your secretaries and by fellows of this Society should be responded to. Occupying as I do the position of master of the Rotunda Hospital, the greatest school of clinical midwifery in this kingdom, I felt it was my duty to state

what our practice was, and what my experience in the question under discussion is. Since I was appointed in November, 1875, we have had about 4000 patients delivered in the hospital. The exact number delivered in hospital during my mastership up to the 1st of May last was 3958. Of these patients, 279 were delivered with the forceps—in round numbers 1 in 14. In our extern maternity, during the same period, we had 2486 deliveries, of whom 85 were delivered with the forceps, or 1 in 29. You will remark that our deliveries by the forceps in the hospital are just double those in the extern maternity. But, sir, in estimating the inference to be deduced from these figures, it is necessary to bear in mind of what class our intern patients are composed. In the first instance, a very large majority of them are primiparous; and I need not say that in cases of primiparæ the forceps are more frequently used. Next, we have a number of patients who seek admission because they are cases of difficulty. Admission to the lying-in wards of the Rotunda Hospital is absolutely free. The consequence is, if a woman has been a long time in labour and becomes alarmed at her labour being tedious, she may herself seek admission, and is at once admitted. Again, patients are sent in to us by general practitioners and by the poor-law medical officers simply because they are cases of difficulty. Moreover, from time to time patients are admitted from the provinces simply because their previous labours have been difficult or dangerous. Now, what the exact proportion of patients coming under these classes is we cannot say with certainty; but suppose that only some twenty are admitted in the year, even that number would considerably modify the inference to be deduced from the figures I have given you. I make these remarks because I consider the proportion of one in fourteen is rather large if taken on an area of general practice, and it is my wish, if I can, to prevent the undue use of forceps in cases in which they are not absolutely necessary. But, sir, if any aid is necessary to midwifery, I feel that the forceps is superior to any other.

With respect to the administration of ergot, it is absolutely given up in the Rotunda—I may say prohibited, because we do not allow it to be given in the extern maternity any more than in the hospital. With respect to the compression of the abdomen, that is a practice which, I must say, I consider at least unscientific and calculated to be very injurious. As to the introduction of the fingers in the rectum with a view of expelling the head, it is a proceeding calculated to injure the soft parts of the mother; it is most irksome to her, and, I suppose, equally irksome to the practitioner himself. But on this point—that is, the use of the forceps when the head is low in the pelvis—I think that there is nearly a unanimity of opinion, as far as I can judge from reading the discussion which has taken place in this Society. The real question at issue is, whether the use of the forceps is justifiable in cases in which the os is not fully dilated. Now, I do not think it is possible that any practitioner of experience, who has thought over this subject, would say that the forceps should not be used because the os is not fully dilated, but I use it in as few cases as possible. When the head is low in the pelvis, and the os fully dilated, we have no hesitation in applying forceps, and, I believe, rightly so; but when the os is not fully dilated, no matter whether the head is above the brim or, as is sometimes the case when a fœtus is small, when the head is low in the pelvis, I object to use forceps unless the condition of the mother is such as, in my opinion, warrants its use. As an illustration, I will mention a case which occurred just before I left Dublin. A woman had been twenty-six hours in labour with her first child. The waters were five or six hours evacuated; the os nearly fully dilated, but not quite; the head just at the brim; the os soft and dilatable; the patient getting exhausted and restless, saying, "Oh, how tired I am;" the pulse risen in two hours from 80 to 105. In this case I applied the long forceps, and I may here say the forceps we invariably use are those known as Dr. Barnes's double-curved forceps. I

delivered the patient, with the greatest facility, of a living child, both mother and child being now perfectly well. I am, however, satisfied that a certain number of practitioners under-estimate the danger which may occur from too early use of the forceps before the os is fully dilated, and I believe that is due to the fact that they do not distinguish between the two very different classes of cases with which they have to deal. In some cases the os is so soft and easily dilatable that delivery is effected with the greatest possible ease and safety. In some cases it appears to me that to talk of the os not being fully dilated is really hardly correct. Over and over again I have watched a case in which the os could be distinctly felt. Keep your finger in contact with the os uteri, and as the pain comes on it will all but disappear; but if the pain is inefficient, the head will speedily recede as the pain goes off, and the os contract to the same condition as before. I have watched such cases a considerable length of time, and these are those cases in which one is tempted simply to apply forceps—a perfectly safe proceeding, but a most unjustifiable one; but it is far different with another class of cases. I think we are too much in the habit of talking of the "os uteri being dilated," or "undilated," as if the os were a mere rim, on dilating which all difficulty was over. But in point of fact we should in most cases speak of the "cervix" rather than the "os uteri;" the whole lower segment of the uterus has to dilate during labour, and it is this undilated cervix which often opposes us. I have more than once applied the long forceps when I thought I had to deal with the os only, and found that my efforts to deliver were opposed by the condition of the cervix. The whole uterus descended as traction was being made, till the lip of the os appeared at the very ostium vaginæ. These were cases in which delivery had become imperative; but consider the pressure to which the cervix must have been subjected between the child's head and the pelvic wall before delivery could be effected, and how great was the danger of laceration of the cervix. This induces me to avoid the use of the forceps

before the os is fully dilated in all cases in which I can do so; but, on the other hand, if a case occurs in my practice in which I believe it imperative to deliver the woman before the os is fully dilated, I unhesitatingly have recourse to the use of the forceps, notwithstanding that the os uteri is not fully dilated. I believe that practice is safer than the practice of version, and I say this with a certain degree of confidence from a not very limited experience. I know the difficulty which I have experienced more than once in endeavouring to bring down the head through an undilated cervix, which has tightly grasped the fœtus round the neck, and I have no hesitation in saying I prefer the forceps to version under such circumstances as those. I think it ought not to be forgotten that in a certain number of these cases we are obliged to use forceps simply because the brim is slightly contracted. In many cases a slight contraction of brim is not distinguishable by an ordinary digital examination, nor can you make it out unless you pass the whole hand into the vagina. In those cases the os never fully dilates, the head never comes down fully on the os, and I am perfectly satisfied in a certain proportion of cases in which these forceps are applied before the os is fully dilated that non-dilatation is due to imperfect contraction of the uterus. With your permission—and perhaps practice is more important than precept—I will read the details of two or three cases which have come under my care during the last year. They are taken from the report of the Rotunda Hospital, which has not yet been published, and will, I think, throw some light on the treatment of such cases as those which we are at present considering:—"Case 1. E. C—, aged twenty-three, was admitted into hospital at 3 a.m. on May 11th, having been about twenty hours in labour under the care of a midwife. The membranes had ruptured the previous day, and the patient seemed much exhausted from protracted efforts at 'bearing down.' The os was about half dilated, and very rigid; a large scalp tumour could be felt on the fœtal head; the vagina

was hot and dry. Warm baths, chloral, and opium were tried repeatedly during the day. At 10 p.m., the patient having been chloroformed, the forceps were applied; os three-fourths dilated. The cervix offered considerable resistance, and some blood flowed with the first efforts at traction. A small thrombus formed at the posterior fourchette as the head was coming down upon the perineum. Two incisions were made laterally in the perineum to avoid the danger of laceration. The child was still-born. Convalescence was uninterrupted and the patient went out on the eighth day." "CASE 2. A. D—, aged twenty-six, unmarried. Labour commenced on May 15th; the waters were discharged the same day. Came into hospital on the 16th, having been twelve hours in labour. The os was found to be the size of a shilling, and very rigid. All the ordinary means of relaxing it were employed, but with very little effect. At midnight on the 17th (third day since escape of liquor amnii) the os was about the size of a florin, still very rigid; the vagina hot; tongue coated; pulse rapid, and the patient in great distress of mind. Chloroform was administered, and she was kept under its influence for twelve hours. At noon the following day (18th) the forceps were applied and locked. No traction was applied for half an hour afterwards, as it was hoped the excentric pressure of the blades would expand the cervix sufficiently for the passage of the head. In fifteen minutes more it was drawn through the cervix, and was soon delivered without further difficulty. The entire time which elapsed from the application of the instruments until the birth of the child was fifty-five minutes. The child was born alive, and lived for thirty-six hours afterwards. 19th, 7 p.m.:— Patient has suddenly become deeply jaundiced, groaning and complaining of general distress, but no pain; respiration rapid; lochia suppressed; no milk. The perineal laceration, which extends half way to the anus, is destitute of granulations and covered with a white membrane; the edges red and œdematous, and the discharge thin and

irritating, excoriating the inner side of the thighs; labia œdematous. 10 p.m.:—Vomiting green matter; semi-comatose, with retention of urine. 20th:—Comatose; breathing quieter; pulse 110. 21st:—Profuse black vomiting, several pints of fluid being ejected. Coma very profound, with stertorous breathing. Death on third day. The autopsy revealed arborescent injection of the peritoneum, with deposit of recent lymph, rupture of cervix uteri extending to peritoneum, diphtheritic membrane on internal surface of uterus, and adhesion of left pleura." That is the only case, I should say, in which I have ever had rupture of the cervix from the use of the forceps, and I think it clearly proves it is a danger which is not to be forgotten. "CASE 3. T. O'N—, aged nineteen, a primipara. Labour commenced about 4 p.m. on June 8th; she did not, however, come into hospital until noon the next day. 9th:—On admission the os was found to be about the size of a sixpenny bit, and the head could be felt through it, the waters having previously escaped. Her pains were apparently very severe, but had not much effect on the os, which felt hard and rigid; she passed a very restless night, in spite of an anodyne draught. 10th:—Os was about the size of a florin, still hard and undilatable. The day and night were spent very much as those preceding had been. On the morning of the 11th, very little progress having been made, chloroform was administered and the forceps adjusted and locked, but so firmly and rigidly did the cervix surround the blades that it was not thought safe to employ traction, and they were accordingly removed; chloroform was withdrawn. The patient was again placed in a warm bath, the water of which was injected into the vagina. After a time matters assumed a more favorable aspect, the cervix softened and began to dilate, about 6 p.m. it was retracted over the head, and the child was shortly afterwards expelled alive by the natural efforts." These cases are to me exceedingly interesting and instructive, especially the last. It was the only occasion I can remem-

ber in which, after applying the forceps, I did not complete delivery; but I felt amply rewarded by the satisfactory termination of the case. It is very well worth bearing in mind that that patient's child was born alive, in contradistinction to the first of the cases, in which the child was dead after the use of the forceps. In conclusion, I have to say our practice is this:—We use the forceps freely when the head is low and the os fully dilated. We use the forceps when the os is not fully dilated, but with the greatest possible hesitation, and with a full conviction that such a practice is not absolutely safe. I may add, I do not think that much infantile life is saved by the use of the forceps before the os is fully dilated. Children are born alive to live for a few hours, but the great majority in my experience die within a few hours after protracted efforts to extricate them. Of course I am now alluding to those cases in which there is some difficulty of extraction, not to those of which I have already spoken, in which the os is so soft and so nearly dilated that to speak of it as not being dilated is, perhaps, really erroneous.

Dr. M'Clintock, of Dublin.—I assure you with all sincerity I would much prefer being a listener in this discussion to taking any part in it. However, I came over to London for the purpose of being present, and I will take advantage of your indulgence, and the indulgence of the members, to offer a few remarks, though, not having had charge of a hospital, nor, of course, the opportunities which a large hospital affords, for several years, my own direct experience in the use of this modern high development of the employment of the forceps is very limited.

In the first place, let me express my very warm approval of the course which the Society has taken in bringing under the notice of its members such a very important subject as the employment of the forceps. We should not forget that there is probably no agency, whether medicinal or surgical, that has effected a greater saving of life and a larger abridgement of human suffering

than this instrument, the forceps. And the forceps can boast of something more than that—what no other agent or instrument can boast of—it was in a great measure the means of effecting a vast and important revolution in practice in this country. It was the discovery of the forceps and its skilful employment that led to the rescue of midwifery from female hands and brought it under the care and the culture of scientific surgeons and physicians; and as a consequence of this—with all respect to the ladies I say it—scientific midwifery has made more progress in the last hundred and twenty years than it had in the thirty centuries preceding. I think, sir, then, that this instrument well deserves at our hands any amount of consideration or time that the Society could devote to it, and I feel, speaking as an individual member of the Society, that our thanks are due to the distinguished member who brought this subject under our notice in a communication characterised by a remarkably impartial and philosophical spirit. Having said so much by way of preface I will address myself very briefly to the two great points in Dr. Barnes's paper; and I shall speak first upon the use of the forceps in the *high* operation, and then say a word or two about its employment in the *low* operation. I must express my hearty acquiescence in one or two general observations contained in Dr. Barnes's paper, apart from my admiration of the paper as a whole. In the first place, I entirely agree with what he says about the danger of drawing fixed conclusions. It is a very dangerous thing to lay down fixed rules in medicine or midwifery. In the next place I entirely endorse his observation in saying that he fears statistics will aid us very little in the investigation of this question, from the difficulty of obtaining facts that are available. I know that Dr. Barnes has expressed on other occasions his hesitation and doubt with regard to the value of statistics, and I am myself more and more coming round to that opinion. I have known many enormous errors and misapprehensions to have been occasioned by the inaccurate, incautious, or illogical employment of statistics. We are

discussing the use of the forceps in purely lingering labours. With regard to the use of the forceps in the first stage of labour, I think perhaps the important distinction of the presence or absence of the liquor amnii is sometimes lost sight of when we speak of this first stage. And yet this constitutes a most material difference, and I regard it as one of the most generally true maxims in midwifery, that as long as the membranes are entire and the liquor amnii present, no danger will accrue to mother or child by the continuance of the labour process, except from convulsions or hæmorrhage. That is an axiom which I believe is perhaps the most universally true of any practical axiom in midwifery, and it is one upon which I have invariably acted. The table prepared by Dr. Churchill as showing that the first stage may be indefinitely prolonged without any injury to the mother, has perhaps been relied on a little too much. I have qualified my opinion with regard to the prolongation of the first stage and the comparative freedom from danger from it by saying that the water should be present and the membranes unbroken. Dr. Churchill gives 144 cases where the labour was excessively prolonged in the first stage—in one case up to six days—and the second stage was short in all the cases, and the women recovered. I think that this is an instance, perhaps, of misleading statistics, for on looking through his work I find that these were really selected cases, and he did not include in this table of prolonged first stage any cases where an operative proceeding was required to terminate the delivery, or where the second stage was prolonged; and we all know it is a very common consequence of the long first stage that the woman, when she enters into the second stage, is weakened, and this strongly predisposes to the necessity of artificial interference. Dr. Geo. Johnston, in his cases, mentions twenty where he proceeded to use the forceps whilst the membranes were still intact. On that point I may say I entirely dissent from his practice, and such a course I would not myself, on any account, pursue. I can hardly

say that such a proceeding would be justifiable, certainly not without in the first instance endeavouring to dilate the os uteri, and then rupturing the membranes. However, it is but due to Dr. Johnston to make a remark or two about his statistics, as they have been very freely commented upon. In 15 of his cases of the 169 where he used the forceps before full dilatation of the os uteri, the forceps was used either on account of hæmorrhage, placenta prævia, descent of the funis, or convulsions. These, however, should be excluded from our consideration of the use of the instrument in purely lingering labours. His mortality was 5·2 per cent. of the 169 cases. But when you come to analyse this death rate, you find that 5 of the deaths arose from convulsions, or gastro-enteritis, from which the patient had been suffering many hours or days before admission to the hospital, so that that would reduce his mortality to a little over 2 per cent. I mention this in fairness to him. Before leaving Dublin I distinctly ascertained from him that in no instance has he applied the forceps unless the os uteri was dilated to the extent of two fifths. Now, my estimate of the value of the forceps in the *higher* operation agrees mainly with that of Dr. Barnes. His remarks with regard to it fully express my own sentiments. He says: "Experience compels me to affirm that the necessity of the operation cannot be frequent," and such I entirely believe. Again he says: "The operation is not without danger in skilful hands." That I also believe. And again, speaking of the use of the forceps where the head is high above the brim and the os uteri only imperfectly dilated, he says, "Far more judgment and skill are required in deciding upon and carrying out the operation under these circumstances." Allusion has been made to ergot. I must say I entirely disapprove of the use of ergot before the os uteri is dilated, or where the head is above the brim. I think it is a most objectionable practice, and it is one I have never myself adopted or sanctioned in any instance. That is all I have to say with regard to the high operation.

With regard to the *low* operation, I must somewhat question Dr. Barnes's first proposition; at least it requires to be a little qualified, for he says the forceps is superior to any of its alternatives. Now I cannot agree with the remarks that have fallen from my esteemed friend and compatriot, Dr. Atthill, about the use of ergot of rye. I think ergot of rye, cautiously and rightly used, restricted to the cases where it is really justifiable and appropriate, is a most valuable remedy, and is not likely to do any harm. With all respect for his opinion I say this. If the head is in the pelvis, and there is no mechanical obstacle to its expulsion, where all that is required is a little increase in the *vis à tergo*, I can see no objection to giving ergot; and certainly, in my own hands, in a considerable number of cases, it has acted most satisfactorily and expeditiously in bringing matters to a conclusion. I know it involves danger to the child, but by timely interference you can rescue the child. If it produce good pains the probability is that the labour terminates; and that is what you want. If it fail to produce uterine action, it will do the child no harm. It is a point upon which I am clearly decided from very careful investigation that ergot only acts injuriously upon the child in a mechanical way, *i.e.* by the frequency and intensity of the uterine contractions which it induces; if it fail to produce these contractions the child will not suffer; and in either case, whether it does or does not, you are just as capable of delivering with the forceps as if you had not given the ergot, and it is always a good preparation for the use of the instrument. Dr. Edis alluded very properly to some other auxiliaries that we may employ under those circumstances in purely lingering labour, and, amongst these, pressure upon the uterus. Of this, however, I have no experience; but as to putting the patient in an upright position and administering nourishment and stimulants and so forth, I think that they may often be advantageously tried. Of course the great proportion of cases where the forceps is used with such extraordinary frequency as we see at the present day, are

cases of this description, where the labour is truly in the second stage. It is the low operation which is here performed. Now the forceps, like nearly every other agent or remedy, has had to go through certain stages after its discovery, and these stages are three. In the first instance, when a remedy comes out it is extolled and praised; it is taken up with the greatest enthusiasm by the mass of the profession, and as a matter of course is often misapplied, misused, and administered in cases where it is wholly unsuitable, and a great deal of injury and disappointment result. Then there is a reaction, and the medicine is thrown aside or consigned to an unmerited oblivion. Then, perhaps, at a later stage, there comes a reaction in the other direction, and the remedy again comes into vogue. That is the stage at which the forceps has now arrived. After the forceps was discovered every one thought he could use it, and a great deal of mischief was done. This led to the reaction which was brought about under the influence of Hunter, Osborne, and other men of that day, and, later, by Robert Lee and Collins, the effect of which was that the forceps fell under an unjust odium. Now we are emerging from that and have got in the last few years into the third stage; and I should hope that under the guidance of men such as this Society is composed of—men of judgment, men of experience, capable of giving a clear exposition of their views, and putting them forward in a temperate manner—I should hope the reaction which happily has set in will be kept within proper bounds. I have lived to see two of these phases in the history of the forceps. In my early life the rule laid down was never to resort to the forceps until symptoms began to appear which were indicative of commencing inflammation or of disturbance set up in the whole system; and the consequence was, a large proportion of these cases was followed by more or less injury to the vagina, and in not a few cases by sloughing, from the use of the instrument being delayed too long. Of late years our general plan has been not to wait for the accession of these sym-

ptoms, but if, after two or three hours, no advance is made, then, on the first symptom of failure of the patient's strength, to resort to the instrument, and by its timely use save the child and the mother. Where the forceps is employed before any inflammation is set up in the vagina, I believe injury from its use is extremely rare, except perhaps injury to the head of the child, from the forceps not having been correctly and properly applied, or to the perineum; but no dangerous injury has resulted, and in this way I am satisfied a great deal of life has been saved, and that the frequency of craniotomy has been most materially diminished. The experience of the Dublin Lying-in Hospital abundantly shows this. Now, about this frequency in the use of the forceps, we hear of some men using it once in every ten cases, others once in every seven, and some more frequently than that. I am inclined to think that this is pressing its use a little too far. In my own private practice the frequency with which I use the forceps is exactly one in thirty, but I know it is not fair to compare private and hospital practice at all, because the classes of cases you meet with are different. In private practice also you have the patient under your own control from the commencement, and she may be considered to be properly treated; but in a hospital the patient is often brought in suffering from the ill effects of a great deal of delay and bad treatment. What, I should like to know, are we to consider as the highest rate of frequency of the forceps coexistent with the lowest rate of mortality to mother and child? This is the great practical problem which we have to solve. As long as the mortality diminishes *pari passu* with the more and more frequent use of the instrument, we are justified, I think, in continuing. But surely there must be some limit to this, and some line beyond which the mortality will gradually begin to rise in a certain ratio with the increasing frequency of the operation. If we could but determine this problem, I think it would point out to us the exact limits within which the forceps might be employed. On the whole,

contrasting in a general way the old and reserved use of the forceps where the policy of procrastination was employed, with the more frequent, nay, even the too frequent, use of forceps of the present day, I am bound to confess that the advantages are greatly on the side of the latter practice as contrasted with the former.

Dr. BASSETT, of Birmingham.—I desire to unite with the gentlemen who have preceded me in thanking Dr. Barnes for having placed this subject before us for discussion. It is impossible to conceive that any matter of greater importance affecting the welfare of the public, and the credit of this Society, could have been placed before it. Unfortunately for us who have to play the part of critics, Dr. Barnes has treated this matter in so complete and philosophical a manner that, except in the way of commendation, it is difficult to say anything by way of criticism. I shall not, however, at this time of the evening, and considering that others have to speak, do more than say that the old landmarks with reference to the use of the forceps having been thrown down, it was quite time to look out for a scientific frontier, a certain geographical area within which we can operate with precision, with freedom, and with safety to our patients. We have this in the statement that Dr. Barnes has placed before us, copying, as he did, the teachings of three of the greatest men who have taught in recent times in midwifery, adding his own experience to these, and giving us an epitome of what we desire to know and carry into practice, with reference to the use of the forceps. There is, however, one reservation I should be disposed to make with reference to the five propositions with which he terminated his paper, and that is as regards the employment of ergot. If you give ergot and watch its effects, if it fails to produce the desired result, you have the forceps at hand to terminate the case without difficulty. My experience has led me to that conclusion. I am satisfied in many cases I have succeeded in effecting delivery by ergot without

forceps, when, had I not administered it, I must have at once employed the forceps. Then, with reference to the more interesting and more important matter, the use of the forceps in the high operation, I have had an opportunity of making use of this instrument where the os uteri has been undilated on several occasions, in the majority of cases with considerable benefit. In a few the operation has failed, and I have had to resort either to turning or to craniotomy. Looking at the matter altogether, if the operation is undertaken prudently, although the os uteri may be only partially dilated, I think less harm will come to the patient than if other methods of treatment are employed.

Dr. HENRY BENNET.—I feel some reluctance at rising to take part in the present discussion, as the remarks I have to make do not directly follow in sequence of the most valuable observations which have been made. Allusion has been made to rigidity of the cervix, and all our obstetrical works are full of allusions to the rigidity of the cervix as hindering the progress of labour, and necessitating sooner or later the application of the forceps. I was led by several remarkable cases that occurred to investigate the nature and origin of this rigidity of the cervix a little more narrowly than had been done, and I made it a point, whenever I remarked rigidity or induration, to examine my patient two months afterwards; and I always found in those patients pathological conditions, chronic inflammation, induration, enlargement of the cervix, and thus the nature of this interference with the normal physiological process of parturition became revealed; and this throws a little light upon the treatment of these conditions, and shows the inutility of many of the agencies usually resorted to—belladonna, &c.; and the advantage that is derived in many cases from incisions. I would also say, as a gynæcologist, we have frequent opportunities of examining women who have gone through instrumental confinement, and I am constantly in the habit of finding, four or six months afterwards, lesions connected with instru-

mental delivery; and I think the rule I follow myself ought to be followed by all obstetricians, that whenever any instrumental labour has taken place, whenever there is any rigidity or interference with the natural and physiological course of labour, no patient should be afterwards left to herself. It should be a matter of rule that six weeks or two months after, an examination should be made to ascertain whether the state of the genital organs is sound. If this rule were followed, a vast amount of physical suffering in women would be saved. Lesions would be discovered, and easily cured within a few months after confinement, which are very difficult to cure when they have existed for some years.

Dr. CRANNY.—The fact of my having been assistant-master of the Rotunda Hospital during the period that Dr. George Johnston was master may be sufficient excuse for my venturing to make a few remarks on this paper. I may say that in the main I agree with Dr. Barnes, but there are a few minor points I should like to remark upon. There is no doubt that there are many cases where the necessity arises for interfering before the os uteri is fully dilated. First of all it may be necessary in order to prevent undue exhaustion of the patient. As Dr. Barnes so very ably puts it, the patient may have gone through a severe first stage of lingering labour, and thereby her powers are exhausted, and she has not sufficient strength to carry her through. In that case there is an undoubted necessity for the use of the forceps. Then the early operation prevents sloughing and its consequences. Now this evening we have heard from Dr. M'Clintock that the use of ergot, when it acts, may cause injury to the soft parts of the mother. Why may not the same danger occur if there is a great pressure by the uterine action without the use of ergot? This undoubtedly exists, particularly in the cases where the membranes have been ruptured early, and I think Dr. Barnes will agree with me when I say that the early

operation in many cases saves the life of the child, and we know from statistics which have been published in a paper by Dr. Kidd that this early interference has decreased the number of craniotomies considerably. I think the number of recoveries that have taken place under this practice which Dr. Johnston has carried out so largely, and which has been criticised so fully, are quite a sufficient justification for his practice. We must bear in mind that, though there were nine deaths, yet he accounts for every one of those fatal cases otherwise than by the use of the forceps, and it is not fair in criticising him to attribute the deaths to the early use of forceps alone. There is one point, I think, that should not be forgotten. Though Dr. Atthill has told us this evening of a case of rupture of the uterus occurring from use of the forceps, still I think I may say that was because the forceps was used in an unsuitable case. If the os uteri had been properly softened and dilatable, that rupture probably would not have taken place. I have seen the post-mortem examinations in most of the cases of death that occurred during Dr. Johnston's mastership, and in no case was there injury done to the uterus by the forceps. As a proof of this absence of injury, I may mention a minor point in practice, but still it will go to bear me out. It was very seldom that we were obliged to use the catheter after delivery in cases of labour that were completed by the use of the forceps, proving that there was no inflammation. This I believe was not the case in former times before early interference was practised. Many cases are on record of sloughing of the vagina, and I believe they were altogether caused from the want of proper assistance in time. The suitable cases, then, are those in which the os uteri is dilatable and soft; it is not right to introduce the forceps in cases where there is a rigid cervix. Dr. Barnes says the natural order and process of labour is disturbed by the operation. That I do not think he is quite right in. I do not believe that the fact of introducing forceps interferes with the natural process at all.

Of course it hastens it, but as to causing any ulterior bad results, I do not think it does. I never noticed the slightest disposition to post-partum hæmorrhage or retention of the placenta caused by the use of the forceps, and I never saw a case where the uterus was dragged down to the vulva; so far from there being a bruising of the soft parts, I think it is a saving to them, because we prevent the tremendous and long-continued pressure upon the soft parts. I agree with most of Dr. Barnes' conclusions, except, perhaps, with No. 4, which I think requires a little modification. There are other considerations besides the position of the head which should influence us as to the use of the forceps. We must also take into account the time the waters have escaped, and whether any progress is being made; also the amount of suffering of the mother and the danger that threatens the child from the long-continued pressure.

Dr. SAVAGE.—If I may, without presumption, make a few remarks, I should like to elicit some further information from our Dublin friends. Though I have not attended a case of midwifery for twenty years, yet, up to that period, my practice was not inconsiderable, and I have ever retained a very lively interest in all that concerns the practice of midwifery, and have watched its progress, and also have been quite surprised to see the new tone that this branch of medicine has assumed. My past experience clashes very much with much that I have heard to-night. I may say my practice was considerable. I attended patients before I ever attended lectures. I have attended many mere lingering labours and never used the forceps once, and never lost a case. I am connected with a hospital to which is attached a maternity—a small one, and so the better watched because it is small. They have there cases of lingering labour, but I hear of no deaths, and this has been going on for twenty-five years. Now, for any one with an experience of that kind to come in collision with statements regarding the use of the forceps

once in every five or ten cases is quite startling. I cannot understand it. I have had lingering labours continuing two days; and what has been the end of them? why, they always did very well without the forceps. And, more than that, there seems to be an error running throughout the whole of this debate, and although I quite agree with all that has been said with regard to the mode in which Dr. Barnes has introduced the subject, it seems also to run through his paper, which is, the looking at the dilatation of the cervix of the uterus as a mechanical affair, which can only be done by a superincumbent pressure. The dilatation of the uterus, in my opinion, is entirely a vital act, having to do with the state of the constitution or the nerves of the patient. If it were not so, what would be the use of your alternatives? If it were not a physiological act, what is the use of the warm water, the chloral, and the opium? You have no mechanism there, and therefore I say, if a man enters the practice of obstetrics with the sole idea that the opening of the uterus is a mechanical thing, he will be a very bad practitioner to the end of his life. He says naturally, "Here is no *vis à tergo;* then I will have a *vis à fronte.*" I am not going into details about these alternatives, which seem to be rather condemned in Dr. Barnes's paper, though, for my part, I think a great deal of them. I was, however, very much struck by an observation which fell from a speaker on the previous evening, who said, "The Dublin school has been talking a deal of nonsense." I was perfectly amazed. I know a great deal of the Dublin school, and, with the exception of thinking that Dr. Johnston's practice was extreme and such as I could not comprehend, I had great respect for the Dublin school. To be sure, the speaker apologised; he said "present company excepted;" rather a left-handed way of getting out of it. I paid particular attention to what he said, and I am certain that never in the course of my life did I hear such nonsense from any one. What did he say? He said he would introduce the long forceps—and here I must call

attention to what Dr. Barnes has said about the long forceps. When you are speaking of the high operation and the low operation, you are speaking of two very different things. Who will undertake the high operation under any circumstances, unless he has had some practice in the use of the long forceps? I consider it hazardous in the extreme in untutored hands. "Now," said this gentleman, "what do I do? I will tell you. I just take my forceps, and I do not care much about the resistance of the os and the cervix; but I get my forceps in, and when I have got them there, by the adoption of some little screw I make this a squeezing forceps, and I will reduce the head so that I can bring it down eventually." Fancy a man with my experience of twenty years ago hearing such sentiments as these, and imagine what must have been my amazement. Now I will say this to him: If you get your forceps into the uterus, the head not descending, and it is above the brim, I will defy any man to tell what part of the fœtal head he catches hold of. I am justified in that by what is remarked by Cazeaux, a Frenchman of great distinction, whose book is adopted by the faculty. He says that the head is now a movable head, and you may catch it by the eye or by the neck, or you may lay hold of it in such a way that it glides something like a cherry imperfectly held by the fingers, and so will slip off, that is, your forceps will slip off, and will inflict a most serious gash. I need not say what would be the consequences of such a result on the eye or the neck. Now, I can imagine this gentleman having got hold of the eye or the neck, and then he applies his screw to reduce the capacity of the forceps. Do you mean to tell me that you will extract a living child under those circumstances, or that you are likely to deliver without serious injury to the woman? Certainly not. I have listened very attentively to our Dublin friends. I have a great respect for them; and they have said, in my opinion, the most sensible things that have been said, notwithstanding the allegation of nonsense that was cast upon them. I hope I am not out of order in trying to elicit what is their

experience with regard to these allegations of Cazeaux. I have not heard one word said in this discussion about the uncertainty of the hold that the long forceps may take upon the head when it is high up; I do not mean when it is down, really resting on the brim, and where you are pretty sure. Supposing you are so fortunate as to get hold of the head, back and front, and you bring it down within the area corresponding with its longest diameter flat on to the top of the pelvis, you will not get it through unless you squeeze with the instrument. How, then, do you hope to get it through? I know you talk about leverage, but the effect of your leverage is simply to do what you can demonstrate on any old tin kettle with an oval lid. Referring to my own practice, I remember we had the long forceps (which we never used), and there was also a perforator; we had not the paraphernalia of the new system. I mention this to contrast the practice of twenty years since with the present practice, and all I wished was not by any means to compliment our Dublin friends, but to do them some little justice in return for the left-handed compliment which was paid them. I should certainly like to know all about this catching hold of the head, and whether, in their experience, they never happened to catch hold of the eye or the neck, and, if so, what were the consequences?

On the motion of Dr. ROPER, the debate was adjourned till the meeting in July.

JULY 2ND, 1879.

WILLIAM S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—67 Fellows and 7 visitors.

Books were presented by Dr. Sam. C. Busey, Dr. Galabin, Dr. Wm. Goodell, Professor E. W. Jenks, Professor J. Lazarewitch, Professor Peter, Dr. W. L. Richardson, and Professor A. Hadfeldt.

Walter S. A. Griffith, M.R.C.S., was admitted a Fellow of the Society.

The following gentlemen were declared admitted:—John Turiname Gardner, M.R.C.S. (Ilfracombe); Hormasji Dosabhai Pesikaka, L.R.C.P. (Bombay); Frederick Ogilby Ross, B.A., M.B. (Brazil), and Thomas Wells Hubbard, M.R.C.S. (Lenham, Kent).

William James Tivy, F.R.C.S. (Clifton), was proposed for election.

ON THE USE OF FORCEPS AND ITS ALTERNATIVES IN LINGERING LABOUR.

The adjourned discussion on the 2nd inst. was opened by

Dr. ROPER.—In considering the question of the frequent use of the forceps, as now before the Society, it is impor-

tant to confine our observations to natural labour, to the exclusion of every kind of complex labour. But, as we hardly ever use forceps in a perfectly natural labour—that is, a labour free from all factors of difficulty, we must have some indications of slight difficulty for which it is justifiable or desirable, if not absolutely necessary, that forceps should be used. In what I have to say, I will speak—first, from observation, from clinical experience; and, secondly, I will make some statistical remarks. The labours to which I have been called to use forceps have been of two kinds; but my observations for the present have reference to the second stage of labour only. The first kind of labour to which I wish to call attention is a lingering, feeble labour, mostly occurring in women who have had many children, in whom the uterine force is very feeble from the beginning to the end of labour. The pains are very slight, and occur only at long intervals, and the labour is protracted simply through uterine atony. The soft parts are very lax, and offer but little or no resistance; the child's head lies loosely in the pelvic cavity, and can easily be moved about in any direction; there is no pressure on the maternal soft parts, and no constant contraction of the uterus to arrest the fœtal circulation. Such a labour, however long it may last, will almost always terminate naturally by expectancy. It may seem to the patient, her friends and attendants, that delivery is desirable; yet certainly it can but rarely be absolutely necessary. If in such a case we decide to deliver with forceps, I have never regarded it as good practice to do so without using ergotine by subcutaneous injection. Frequently, however, the manipulation which is necessary in applying forceps will stimulate both the uterus and the reflex and voluntary expulsive efforts of the patient. I do not trust to ergot alone as an alternative to forceps, but I use it as an adjuvant. Although ergot generally stimulates the uterus to increased action, it does not always succeed in expelling the child. The uterus under the influence of ergot seems at times to contract on the child, and thus by its continuous tonic action will speedily destroy the life of the

child if it be not quickly liberated from this vice-like pressure. When its influence is expulsive I would give it a chance of effecting delivery; but I would not wait longer than ten minutes after the uterus had become ergotised before applying forceps. If there be any efficacy in pressure on the fundus uteri to expel the child, this is the kind of case in which it ought to be useful; but I place no reliance on it as an operation *per se*. I believe we cannot thus squeeze out a child as we express the placenta. I was glad to hear that at the last meeting of the Society it received the condemnation of Dr. Lombe Atthill. I have heard this manœuvre spoken of as "shoving" children out. We must bear in mind that while the process of "shoving" children out is a mere mechanical proceeding, yet the manipulation of the fundus uteri to effect this will frequently act as a stimulant to the atonic uterus, and cause it to act. In many patients with lax uterine tissue and a flabby state of the soft parts of the outlet, the child is ready to drop out without giving the patient much warning. The second kind of labour is of an opposite character to that just described. This labour for the most part occurs in primiparous women who are young and robust, in whom we get a powerfully acting uterus, pains of a forcible expulsive kind occurring frequently, and the expulsion of the fœtus being resisted by rigidity or tonicity of the soft parts of the outlet. In such a case we see the head forcibly thrust down with each pain on the soft parts of the floor of the pelvis, distending the perineum to the thinness of parchment, and yet it does not come through. On cessation of the pain the head retreats quite back into the pelvic cavity, all tension is relieved, the maternal soft parts are freed from pressure, and the placental circulation is restored during the interval between the pains. Very many pains may occur and a long time elapse before the head is protruded, but so long as the uterus continues to act thus forcibly and rhythmically the use of the forceps is contra-indicated. Nature seems to be admirably using a force little by little; the progress of the head is very slow, but is nevertheless certainly going on. During all this time

two conditions are being brought about which facilitate delivery, namely, relaxation of the rigid soft parts and moulding of the fœtal head. If a greater force were applied at one time, as in delivery by forceps, severe stretching, bruising, and tearing might reasonably be expected. It may, however, happen that the powerfully-acting uterus in the end is unable to overcome the rigidity of the soft parts of the outlet. We are warned of this approaching failure by the pains becoming less forcible and occurring at longer intervals; there is less movement or progress of the head with each pain; the uterus, as felt through the abdominal wall, is becoming persistently hard from tonic contraction; on making a vaginal examination the head will be found immovably arrested or impacted; the labour finally has come to a standstill. This is a state of things which experience ought to teach us to anticipate. We ought not to allow a protracted laborious labour to run on to a state of dead-lock; sound judgment directs us to supplement the failing powers of nature by the timely use of the forceps before the breakdown takes place. The highest degree of refinement of judgment will here manifest itself in directing us when we should use forceps, and the same refined judgment will admonish us when we ought not to use them. I not unfrequently hear of perineums being ruptured through into the rectum by the premature use of the forceps—misfortunes which, I believe, would not have occurred if the cases had been left to expectancy. The two casts exhibited represent in the one case a large round head born in a feeble lingering labour, the mother having had fifteen children at full term. Ergot was given in the second stage of labour, which severely ergotised the uterus, and the child was not expelled till after it had been squeezed to death. The second one represents the head of a child extremely moulded, having been left a long time in a laborious first labour, so long as to be fatal to the child, delivered by forceps. Doubtless the timely use of the forceps would have saved the lives of both these children. One child lost its life by ergot, the other by expectancy too long continued.

I will now speak of the application of forceps in the first stage of labour, that is, in a labour where the factor of difficulty is a tedious lingering dilatation of the os uteri, accompanied by pressure on it of the bag of membranes or of the presenting head itself when the liquor amnii is discharged. It is alleged that pressure of the head on the os uteri, especially after the escape of the liquor amnii, is a source of danger to the life of the child, and productive of serious consequences to the maternal structures, if not to the life of the mother; and therefore, to avoid these dangers, it is desirable, if not absolutely necessary, to effect delivery with forceps even where the os uteri is only two fifths, three fifths, and four fifths dilated. The existence of such dangers during the first stage of labour has not been observed in my own experience. I have never seen a single case of death of either child or mother, nor damage to the maternal structures, from a protracted first stage of labour. I am, of course, speaking of labours which are otherwise natural excepting a rigid state of the os uteri. I would here observe that by rigidity of the os uteri is meant that condition of structure which consists in mere physiological rigidity such as we get in the tonicity of the soft parts of young, robust primiparæ. All structural diseases of the os being excluded, we must also omit that very rare form of difficulty, trismus of the uterus. We must also take great care to omit all other causes which really belong to the domain of complex labour. Let us, then, take a simple case of rigid or slowly dilating os uteri, such as we most commonly see in first labours—say two fifths dilated. Let the membranes be ruptured, and then we have the head itself pressing on the os with each pain, and receding from it when the pain ceases. The discharge of the liquor amnii will necessarily cause the first stage of labour to be protracted and somewhat more painful than when the membranes are entire; every practitioner of experience will be prepared for this as a natural consequence. But in such a case there is no continuous pressure. The uterus does not, in the first stage of labour, take on a persistent contraction,

as it does when exhausted after a prolonged laborious labour in the second stage. No impaction of the head can happen in connexion with the first stage of labour. I am now speaking of a case where the head is above the brim at the commencement of the first stage of labour. When the head is pressed down on the os this is gradually expanded, the long axis of the uterus is shortened, and as the os is drawn up over the head the head is forced through the brim down into the cavity of the pelvis. If the whole pelvis be normally formed, the head will always be driven down on the os; if, however, the head does not descend on the os, but lodges on the brim during a pain, then we must seek for some disproportion or other cause of complex labour. I think it of the highest importance to keep up a wide distinction between a head above the brim which does not come down because it is obstructed, in the one case by the brim itself—a bony obstruction—and in the other by the rigid os and lower segment of the uterus. By the time the first stage of labour is completed in a perfectly natural labour, we may take it as a certain rule that the head will be down in the cavity of the pelvis. If, when the os is nearly fully dilated, the head remains above the brim, we may reasonably expect some complex form of labour, probably a conjugate contracted in a small degree. If we elect to apply forceps because the head which is pressing on the os does not speedily or readily dilate it, it seems to me that we are not simply assisting labour, but that we are really anticipating it, converting a physiological process into a mere mechanical proceeding. It is actually a forced kind of delivery, such as we are at times obliged to have recourse to in certain complex labours attended with imminent danger to the life of the mother. In such cases I have frequently seen the os uteri and head dragged down together, so that the rim of the os has been seen at the vulva. Dr. Lombe Atthill mentioned at the last meeting of the Society three highly instructive cases; the first showing what may be done in the hands of a skilful and experienced operator; the second the damage done, even to the destruction of the mother's life; and the

third in which he desisted in his efforts to deliver through a fear of lacerating the os, and the child was born naturally eight hours after—a triumph of expectancy. Dr. Collins, in his 'Practical Midwifery' (p. 16), has made an observation which is in accordance with my own experience, namely, that the death of the child, as a rule, precedes injury to the maternal structures, so that whenever a child, by stethoscopic examination, is found to be alive, we may take this fact as presumptive evidence of the safety of the maternal structures. In 12,000 cases in the Royal Maternity Charity, though I have seen several cases of children stillborn from protracted labour, not one case of sloughing, or even severe inflammation, of the maternal structures has occurred. It is said by some of those who advocate the frequent use of the forceps in the first stage of labour that the instrument should only be used when the os is dilatable; it seems, therefore, that the forceps are employed in cases where no necessity exists for their use, for the head pressing on a dilatable os will soon expand it. There is a class of cases belonging to neither feeble lingering labour nor to the exhausted condition of laborious labour, such as we see in very nervous women, whom it is desirable to deliver by forceps. Such women bear their pains badly; they are unskilful in their efforts to assist the uterine force by their voluntary efforts; on the contrary, they do all they can to retard delivery by screwing themselves into attitudes unfavorable for delivery. It is good practice to place such women under the influence of chloroform, and deliver them with forceps, provided there be no contra-indications. In the prolonged first stage of labour, caused by rigidity of the os, when the patient is wearied and fatigued (not exhausted, for the term "exhaustion" is here continually misused), my practice has been to give opium or repeated small doses of chloral, or to use the inhalation of chloroform to a mild extent, with a view of procuring rest, giving, at the same time, easily digestible nourishment. It is also important to assure the surrounding friends of the safety of such a labour, though it will, of necessity, be protracted, and thus save the patient

from their incessant worry and importunities that something should be done to deliver the patient forthwith. I will now refer to the frequent use of the forceps in ordinary practice, such as we know to be a custom of the present time. Many practitioners are in the habit of taking forceps with them to every case of midwifery to which they are called, and whenever any delay takes place the forceps are forthwith applied without the existence of any factors of difficulty. The instrument cannot be said to be used in such cases in the interest of either mother or child; the best that can be said in favour of such practice is, that it diminishes the duration of maternal suffering; and this it may do, but against this diminution of prolonged suffering of a slight kind we must place the intense pain of rapid delivery by forceps, the risk of injury, post-partum hæmorrhage, trouble with the placenta, and the after effects of subinvolution caused by not allowing the uterus to do its own work. I cannot help thinking that much of the gynæcological work of the present day results from this frequent interference with the natural functions of the uterus in childbirth. We must all have observed the good gettings up of women who have gone through severely laborious labours, probably a consequence of vigorous uterine action tending to produce good involution. The remarks of Dr. McClintock on the question of the frequent use of the forceps in ordinary midwifery practice, in one of his annotations in editing Smellie's works (vol. i, p. 271), are so excellent that I cannot forbear quoting them. He says: "I can well understand that, provided this powerful agent be employed by skilful hands under the direction of experienced heads, it may be employed at the rate of *one* in *ten* with perfect safety to mother and child, and with great saving of pain to the former and of time to the operator. But I maintain that more than two thirds of the patients so delivered would have fared just as well had no instrumental assistance whatever been given. In simply tedious labours, the exact time at which the forceps may be advantageously interposed must depend a good deal on the operator; the risk from the instrument being so much less

with a good than with a bad operator. The former need not wait so long for a natural termination as the unskilful should do. Moreover, we should never forget that the *practicability* of using or applying the instrument is totally different and distinct from the *advisability* of doing so." Also, in speaking of the use of forceps in the first stage of labour, he says: "But its employment under these circumstances is quite exceptional, and can only be regarded as a resource of which a skilful operator may avail himself in cases of extreme urgency."

I do not see, then, how we can say that the rate of mortality is diminished by the use of the forceps; on the contrary, I think it is much increased. The first thing that would strike one is that the mortality was increased by the frequent use of the forceps in the first stage. But, singularly enough, that is not so; for in the 752 cases recorded, the death-rate was 1 in 13; and in the 169 cases where the os uteri was two fifths, three fifths, or four fifths dilated, there were only 9 deaths, or 1 in 19; so that the deaths where the forceps were applied in the first stage of labour are not in so great a ratio as where the forceps were applied in the second stage. Dr. Johnston states that he never uses the forceps unless there is imminent danger to the mother or child, and that he always used them to prevent sloughing. He says, at page 13 of his own report, that there were eight cases of sloughing of the perineum, and that he did not allow labour to be prolonged so far as to produce any of the symptoms indicative of vaginal inflammation, considering it to be safer to interfere before such should appear. Whence came the sloughing? I can only say that I have attended 12,000 cases, and I have not seen one case of sloughing; and Dr. Collins, who had attended 16,000 cases, had only seen one case of sloughing.

I hold in my hand a statistical account of the deliveries in the Eastern Division of the Royal Maternity Charity, London, during the years 1875-76-77-78.

I succeeded the late Dr. Phillips, as physician to the Eastern Division of the Royal Maternity Charity, in April,

1874; and as the Charity's year commences in December, the year 1874 was to me a broken one. Having been suddenly called to the work of the Charity, my notes for that year are not so reliable as I could wish. The whole number of cases which have been attended in the Eastern Division of the Charity, from the time of my appointment up to the present date, amount to about 12,000; but I shall only take the four complete years mentioned. In this period the deliveries amount to 9389.

The table gives the total number of deliveries—total number of forceps cases—total number of fœtal deaths in forceps cases—total number of maternal deaths with forceps—total number of craniotomy or cephalotripsy cases, with total number of deaths in these operations—total number of still births in total deliveries—total number of maternal deaths from all causes.

	Total number of deliveries.	Total number of forceps cases.	Total number of fœtal deaths with forceps.	Total number of maternal deaths with forceps.	Total number of cases of craniotomy or cephalotripsy.	Total number of deaths after craniotomy or cephalotripsy.	Total number of still births in total deliveries.	Total number of maternal deaths from all causes.
Eastern Division of the Royal Maternity Charity.	9389	80	17	2	13	2	300	32

In all the 80 cases in which forceps were used, some well marked factors of difficulty were indicated; as, atony of the uterus in women who had borne many children, whose abdominal walls were lax, giving rise to obliquity of the uterus—the uterine and auxiliary forces of labour being feeble—prolapse of the funis—cases rendered lingering by the child being dead—placenta prævia and accidental hæmorrhage—convulsions—contracted conjugate or some kind of malformed pelvis—large children, with large and hardly ossified heads—some few cases of laborious labour produced by rigidity of the soft parts of the outlet of the pelvis—arrest of head from any cause, as disproportion between head and pelvis—malposition of head.

The forceps were never used in the first stage of labour, except in a very few cases, where there existed urgent symptoms which indicated immediate danger to the life of the mother or child, as in complex labours. They were never used in the first stage of labour for simple rigidity of the os uteri in labour otherwise natural. Of the 80 children delivered by forceps 63 were born alive—17 were dead.

Of the 80 women delivered by forceps, 7 only were primiparæ.

Only two maternal deaths occurred after forceps delivery. One was moribund at the time of delivery. Dr. Burchell was present with me. The patient had always had difficult labours; her moribund condition was from hæmorrhage, probably of the accidental kind; but she had a large thrombus of the labium which had ruptured, and from which there had been profuse bleeding. The second death occurred in a primipara with a contracted conjugate. She was a half-witted person. I had seen her at eleven in the morning, but did not observe any indications for immediate delivery, though I believed she would not be delivered naturally. I made an appointment with a friend to see her with me in three hours, that he might assist me by giving chloroform, if I should determine to deliver by forceps. Unfortunately, my friend was unable to attend, so I attempted to deliver with forceps without chloroform. The head was arrested in the brim; os nearly fully dilated; I could feel the edge of it between the fœtal head and walls of the pelvic brim. On making traction, the patient jumped up on her knees and sat down on the forceps, producing a severe laceration of the cervix posteriorly. This, however, did not extend into the rectum or peritoneal cavity. I then gave her chloroform, re-applied the forceps, and delivered her of a living child. The wound became inflamed, and she died of septicæmia thirteen days after delivery.

Thirteen women were delivered by craniotomy or cephalotripsy. Of the children, 2 were alive and 11 dead at the time of the operation.

The following table will at once afford a comparison of the practice, with its results generally, as carried out by Dr. Johnston and Dr. Collins, during their masterships of the Rotunda Lying-in Hospital, and by myself, in the Eastern Division of the Royal Maternity Charity. This comparison is interesting, not only generally but particularly because we have three sets of cases conducted under different modes of practice as regards the use of forceps. Dr. Johnston's practice representing a high rate of forceps use, that of Dr. Collins' a low rate, and that of the Eastern Division of the Royal Maternity Charity an intermediate one:

	Total number of deliveries.	Total number of forceps cases.	Total number of fœtal deaths with forceps.	Total number of maternal deaths with forceps.	Total number of cases of craniotomy or cephalotripsy.	Total number of deaths after craniotomy or cephalotripsy.	Total number of still births in total deliveries.	Total number of maternal deaths from all causes.
Dr. Johnston, Rotunda Lying-in Hospital	7862	* 752	† 54	58	28	6	‡ 468	169
Eastern Division of Royal Maternity Charity	9389	80	17	2	13	2	300	32
Dr. Collins, Rotunda Lying-in Hospital	16414	vectis 3 24	8	4	79	15	1121	164

Rate at which forceps were used in total deliveries.

Dr. Johnston.	Rotunda	About 1 in 10
Dr. Roper.	Eastern Division of Royal Maternity Charity	„ 1 in 117
Dr. Collins.	Rotunda	„ 1 in 608

* In Dr. Johnston's 752 forceps cases one child only is given for each case. In 752 cases a fair proportion of twins would be about 10. What was the result to these 10 children? If stillborn they would, in 752 deliveries, constitute an additional mortality of about 1·5 per cent. not accounted for.

† 60 children died soon after delivery.

‡ Calculated at the rate of 6·1 per cent.

Rate of fœtal deaths in forceps cases.

Dr. Johnston.	Rotunda	About 1 in 14
Dr. Roper.	Eastern Division of Royal Maternity Charity	„ 1 in 4¼
Dr. Collins.	Rotunda	„ 1 in 3

Rate of maternal deaths in forceps cases.

Dr. Johnston.	Rotunda	About 1 in 13
Dr. Roper.	Eastern Division of Royal Maternity Charity	„ 1 in 40
Dr. Collins.	Rotunda	„ 1 in 6

Rate of craniotomy or cephalotripsy in total deliveries.

Dr. Johnston.	Rotunda	About 1 in 281
Dr. Roper.	Eastern Division of Royal Maternity Charity	„ 1 in 722
Dr. Collins.	Rotunda	„ 1 in 208

Rate of total still births in total deliveries.

Dr. Johnston.	Rotunda	About 1 in 17
Dr. Roper.	Eastern Division of Royal Maternity Charity	„ 1 in 31
Dr. Collins.	Rotunda	„ 1 in 15

Rate of total maternal deaths from all causes to total deliveries.

Dr. Johnston.	Rotunda	About 1 in 47
Dr. Roper.	Eastern Division of Royal Maternity Charity	„ 1 in 293
Dr. Collins.	Rotunda	„ 1 in 100

It has generally been believed that maternal mortality in lying-in hospitals is greater than in extern maternity charities, in consequence of the frequent prevalence, either endemically or epidemically, of puerperal diseases in the former, caused by large numbers of puerperal women being congregated in the same building.

On the other hand, it has been said that an extern maternity charity enjoys comparative immunity from endemic or epidemic puerperal diseases, and has a low rate of maternal mortality, as a consequence of the women being attended separately at their own homes.

In comparing the mortality under these two systems, it is

desirable to consider the circumstances which are favorable or otherwise in both cases. In a well-conducted lying-in hospital the surroundings of a patient are highly favorable to her well doing, as compared with the circumstances of a poor woman attended at her own home. On these two points I cannot do better than quote Dr. Johnston's own remarks,* he says, "It could not be admitted that zymotic disease (puerperal fever) prevailed *endemically* in hospitals *generally*, although we have no hesitation in allowing that it may appear occasionally in those which may be ill-ventilated or overcrowded, and that it was injustice to put forward the dogma, that where puerperal fever is epidemic it shows itself generally in our great maternity hospitals in the first instance. Such, I maintain, is not the case. On the contrary, how frequently have we known it prevailing in other quarters, amongst patients confined in their own houses, even among the affluent, when the hospital was exempt from sickness. Nay, how much rather should we look for these diseases in the localities from whence those seeking admission emanate —in the narrow, filthy, unswept streets and alleys, in too many instances reeking with the pestilential effluvia of half-putrid offal or ordure, which by imperfect sewage, or no sewage at all, allows the noxious gases escaping therefrom to pervade the overcrowded, small, unwashed, ill-ventilated apartments; their bedding—if possessed of such a luxury—saturated with filth and dirt; the unfortunate occupants requently in a weak, emaciated state, from want, penury, starvation, and disease, in fact, everything tending to produce a poison which cannot be otherwise than injurious, and most likely to engender the malady we have all of us so much reason to fear. Contrast those miserable dwellings with the large, lofty, and airy wards of our institution, where perfect thorough ventilation is observed; where the patients are not crowded together, but ample cubic space of air is allowed for each; where the strictest cleanliness in every manner is maintained, and every attention is paid to

* 'Clinical Report of the Rotunda Lying-in-Hospital,' for the year ending 5th November, 1869.

their wants and well being, by liberal diet, beef tea, wine, &c. It is not reasonable to come to the conclusion that instead of the hospital being the habitat for zymotic disease, it should rather be attributed to the wretched abodes of those poor creatures who seek its shelter." Notwithstanding all these advantages in favour of the Rotunda patients, it is evident that a large maternal mortality has occurred during Dr. Johnston's mastership of the Rotunda. That this large mortality did not arise from hospitalism or the epidemic prevalence of puerperal disease is also evident. Dr. Johnston endeavours to account for it by considering it as a consequence of the patients coming from the miserable homes which he has described, where zymotic diseases were then prevalent. The patients when admitted were suffering from the enfeebling influences of poverty and disease; and he implies that much zymotic disease was thus brought into the hospital, but that it did not originate therein. On looking over the causes of the maternal deaths of those who died in the hospital, one fails to discover that these patients died of the true zymotic diseases—the diseases which caused death seem to be of the ordinary puerperal kinds. Be this as it may, the patients when admitted into the Rotunda were at once placed under circumstances as favorable as could be for their well doing. On the other hand, take the patients of the Eastern Division of the Royal Maternity Charity, living in the courts, alleys, and narrow streets of Spitalfields, Shoreditch, Whitechapel, Ratcliff Highway, Bethnal Green, the poor parts of Hackney, Homerton, Bromley, Bow, Hoxton, Stepney—many of these places containing small colonies of the low class of Irish, the whole of the low Jewish population, English and foreign. They not only ordinarily live under the worst of hygienic conditions, and in the frequent presence of some kind of zymotic disease, but they are also delivered and spend the puerperal period there, and are thus left exposed to these adverse influences from which the patients of the Rotunda are removed during the puerperal period. It is of constant occurrence that several children—a whole family—are sleeping in the lying-in room; and in

the same house, if not in the same family, there may be measles, scarlatina, typhus or typhoid fever. During the past winter, in consequence of commercial depression, the poverty of many of the patients of the Eastern Division of Royal Maternity has been dreadful to witness; a constant complaint has been made—"I have been kept low lately, my husband has been out of work for many weeks." How the poor creatures exist and get through their troubles under such adverse circumstances has often struck me as marvellous. The conditions under which the patients of the Rotunda and those of the Royal Maternity are delivered in respect of hygiene, nursing, and care, seem to be greatly in favour of the Rotunda. Dr. Galabin has given in a paper* "On the Effects of a Frequent Use of Forceps upon Fœtal and Maternal Mortality,"—a reason for a low rate of maternal mortality in the Royal Maternity Charity. He says:—"It has been stated lately by Dr. Barnes, formerly physician to this Charity, in reference to the advantage or otherwise of employing midwives, that many difficult cases are told off beforehand to medical men, and that premature births are almost entirely excluded." The first statement does not apply to the present management of the Charity. So far from the difficult cases being told off beforehand to medical men, this is not the present custom, nor has it been during my tenure of office. Whenever a difficult case has happened, an explanation has always been made to the patient or her friends, as to the precautions to be observed in a future labour. As a result of this advice, during my term of office I have delivered many women twice and three times under difficulties, for example, craniotomy twice in the same woman, in her third pregnancy induction of premature labour. One woman with contracted conjugate has been delivered four times by version, and another three times. One of these women had been delivered by Dr. Barnes years ago when he was physician to the Charity, and the other by the late Dr. Phillips. With regard to the statement "that premature births are almost entirely excluded,"

* 'Obstetrical Journal of Great Britain and Ireland,' December, 1877.

I think there must be some error. The midwives' tickets are not given out to the patients as a rule till they are four or five months advanced in pregnancy, and when an application is made to attend the patient, the midwife is required to enter the case in her delivery book; she is paid so much per case; whether the case takes place prematurely or at full term makes no difference. She is therefore not likely to omit entering a premature case; if she did she would be depriving herself of her fee, which she is not likely to do. The delivery books continually show in the returns, "still-born, premature." These premature still births are always calculated in the total fœtal mortality.

One class of cases tells unfavorably for the Rotunda in its maternal and fœtal mortality, viz. the large number of primiparæ it receives; thus, in Dr. Collins' 16,414 deliveries, 4969 were cases of primiparæ. A large number of primiparous cases will doubtless lead to large mortality, both fœtal and maternal. In the Royal Maternity Charity only married women are attended, and consequently there are fewer primiparous cases. In all other respects the patients of the Royal Maternity are unselected.

Whatever may be said against the comparison of the systems of intern and extern maternities, this objection cannot be made against Dr. Collins' cases as against Dr. Johnston's, for both sets of cases occurred in the same hospital. There was, however, this disadvantage on the side of Dr. Collins', viz. that puerperal fever was epidemic in the Rotunda in the winter, 1828-9, during which period 88 patients took the disease, 56 of whom died. Dr. Johnston had no epidemic. During Dr. Collins' seven years of office, the number (16,414) of women delivered was more than twice as great as Dr. Johnston's number (7862) delivered during his seven years of mastership, from which we may infer that the hospital was greatly overcrowded in Dr. Collins' time, and not in Dr. Johnston's. In reference to the great maternal mortality of Dr. Johnston's practice, double that of Dr. Collins', and six times greater than that of the Eastern Division of the Royal Maternity, London, we

must seek some other causes than the importation of zymotic disease from without, or the poverty of the patients—many being single, seduced and fretting. From these alleged general causes of fatality we must investigate the causes leading to deaths in individual cases.

I feel that it is necessary for me to compliment Dr. Barnes on the able manner in which he has brought this important subject before the Society; nor can I conclude my remarks without expressing my thanks to Dr. George Johnston for the publication of his practice and its results, and in this I believe every Fellow of the Society will join me. I can, however, only regard his practice as a great experiment, carried out with a view to demonstrate that the frequent use of the forceps tends to save both fœtal and maternal life in childbirth; but in its results the experiment has failed to prove that it has this fortunate tendency.

Dr. Braxton Hicks.—I should not have risen to speak on this subject had not our alma mater called upon us individually to express our opinion upon it; the more so as I have already written some remarks, which will be found in the 'Transactions of the Obstetrical Society' for 1867, on the condition of the uterus in obstructed labour, and an inquiry into what is intended by the terms "cessation of labour pains," "powerless labour," and "exhaustion;" and there is also a lecture of mine published in the *Medical Times* five or six years ago, putting the matter more simply for the benefit of my students. We may look upon these matters from two points of view. First there is the general practitioner's view, the view of those who attend upon ordinary labour cases; and then there is a view of those who are not called in until after a labour has progressed for a long time. If we look at these cases in our own particular way, we who are called in consultation are apt perhaps to over-rate the numerical frequency of the severe cases, while others are perhaps a little inclined to underrate them. It is by bringing us together and hearing our different opinions that something like a reasonable conclusion can be arrived at. I think it

will be the better plan to take the line which is indicated in the *précis* for our argument or discussion. I will first refer to two alternatives not mentioned in the *précis*, chloroform and turning. It sometimes happens, when a woman must be delivered, and we have no instrument at hand, that turning is efficacious and successful. With regard to chloroform, it will appear from what I am going to say, how far it will assist and be a real alternative. There are two questions asked. One of these is, Does lingering labour occur so as to entail danger to the mother and child during the first stage of labour? I would simply answer, Yes, unquestionably. I have seen a considerable number of women—more than I should like to see again—who have been sacrificed because the fœtus has been detained *in utero*; there has been trismus of the uterus, and the fœtus has been held in, when the woman might have been delivered with facility. The other is the application of the forceps necessary or useful before dilatation of the cervix? Certainly. How often is a matter of further consideration, but that there is a necessity sometimes cannot be doubted. Cases rise before my mind which are examples of this, but I will only answer the question in the affirmative. If I could not have answered it in the affirmative, I could not have gone into the discussion of the other propositions, the second and the third. I take those first because they embrace simpler conditions, and the others will almost be answered by the time I have finished the second and third. We have two propositions put into one. "In lingering labour when the head is engaged in the pelvic brim, and when it is known that the pelvis is well formed, the forceps is better than its alternatives." It is impossible to discuss a question like this without going more specifically into the causations of lingering labour. I have been forestalled by what has been said by Dr. Roper, or rather I have forestalled him, because in the publication to which I have referred you will see the whole thing stated. There are two typical, opposite conditions of labour. Before we discuss them it will be better to inquire what are the difficulties in the first stage of labour, and where they lie.

They are very few indeed. There is inertia of the uterus, and there is the overaction or trismus of the uterus, and there are intermediate conditions between these. Then there is spasm of the lower segment of the uterus almost akin to the other, and of the os uteri, the lower part of the uterus. Then we have slight obliquities of the uterus which interfere with the progress of the child. Then sometimes the child gets a little doubled up, and cannot descend; the uterus does not act upon it sufficiently. Sometimes we have a toughness of the membranes as a cause of detention. When we know what is likely to occur in the first stage, limited as we are to discussing the faults of the uterus, we can pretty clearly argue on the whole matter.

First, we have the condition of the uterus as a motor power. There is a deficient action, a slow opening of the os uteri, long intervals, perhaps many hours, between the contractions of the uterus; the liquor amnii may or may not be discharged; it generally is discharged in more prolonged cases. Now, as long as cases go on like that, we shall agree that there is no reason for any interference. If you do interfere you may have an atonic uterus after delivery, non-expulsion of the placenta, and perhaps post-partum hæmorrhage. In these cases length of time is not of the smallest consequence. As I have pointed out in my paper, it is important to understand that death is not likely to occur in a woman from simple detention in the first stage, so long as the pulse is not rising. The only condition in which we might make an exception is where the fœtus has been already dead before labour has set in; the liquor amnii has escaped, the fœtus is decomposed, and the patients get into a puerperal septicæmic condition, which may go on, without expulsive pains, to death. But that is a very rare condition. Of course there is the case of cicatrization of the os uteri, but we are not permitted to discuss that now. In the cases to which I have referred we do not go about in fear and dread that the patient will die of exhaustion. I have never seen it, and do not think anybody else has. As to the condition of trismus, I have related the symptoms of it in my paper. The uterus

is tightly round the child; there is no flaccidity about it; there is no dulness outside the fœtal shape; the fœtus is fixed, you cannot move it about. It is a thing to be easily made out if you are careful in examination, and not too much in a hurry to take your hand off the uterus. It is very important to recognise the first stage of this, because it is upon the supervention of the first stage that we are necessitated to act. When the uterus distinctly takes this particular form of action it is very seldom that you get the fœtus expelled by natural efforts. These cases are not so uncommon as you suppose. They show themselves not so much in the first as in the second stage.

It is in the second stage, I believe, that the difficulties of the first stage accumulate, and which might have been avoided. The uterus begins to be continuously contracted between the pains; the pains do not go off, and the contraction passes into the interval. When that begins the time for action has arrived. It is possible that by the use of a little chloroform (not too much or there will be no action from behind) you may ease the contraction, or you may by small doses of opium, frequently repeated, get that state of irritability to subside. Or you might try the milder alternative of expression. Certainly, as a general rule, you would not use the alternative of ergot. If you begin to use ergot in the early stages when the os uteri happens to be a little tight, and the uterus not prepared for the expulsion of the child's head, you will have this very irritable condition brought on by the action of the ergot, and there is nothing more dangerous. I have been called in to numerous cases in which ergot has been given because the practitioner has not distinguished between the total inertia and this continuous contraction which is going on, accompanied by mild and feeble pains. As soon as the pains begin to run into the interval (that is the important point) then it is that you find the pulse begins to rise. I have watched these cases very carefully for a long period, and I can emphasize what I said in my original paper that I have seen no exception to that rule.

As soon as this contraction begins to occur the pulse

begins to go up, and you have nerve-irritation and exhaustion from the long continuance of the trismus condition; you have what is called powerless labour or exhaustion. It is not powerless labour; it is the contrary, it is an over-active condition. The uterus gradually gets into a continuous contraction until it becomes so hard and rigid that you cannot make the smallest impression upon it. I have seen cases where the uterus has been as tight as if it had been made of papier-maché, so solid and so unyielding in its contraction. That is an extreme form that will come on sooner or later if the woman is not delivered as soon as the symptoms of "powerless" labour commence. It is a state of nervous exhaustion—Dr. Roper, I think, bears me out in that; it is not the crushing or bruising of the parts by the pressure of the child's head that produces that condition; it is nervous irritation and exhaustion. I cannot explain it, but I can say that as soon as a woman in this condition is delivered, if she has not gone beyond a certain point, the condition begins to cease, and in a couple of hours it is all gone. If there had been any bruising or sloughing, of course this would not occur. I have watched these cases carefully, and am perfectly assured that the condition ceases very quickly after the source of irritation is removed. If the patient goes into the highest degree of trismus she will generally die; our object is to prevent that condition. It is important that the symptoms should be recognised early. Sometimes you find that the water has drained off slowly, the uterus gradually gets irritated, and the pains hardly begin at all. That, no doubt, is a very treacherous sort of case. As soon as the condition I have referred to comes on, traction must be adopted, unless, by giving chloroform or small doses of laudanum, you can produce relaxation, and so get rid of the trouble. You may get the condition sometimes when the os uteri is open, and sometimes when it is contracted. If it is an open os uteri, the condition is very simple: the forceps will go in readily and draw the fœtus out of the grip of the uterus. We can easily see that if the uterus is gripping the child, it must be exposed to great danger, and the sooner we get it

out the better for the child. Statistics or no statistics, that is as plain as possible. But when we get the os uteri and the lower part of the cervix rigidly contracted, then the difficult question arises how far we should interfere. Now, supposing this is not a case in which we have mistaken this condition for the ordinary prolonged first stage of labour—which it sometimes is; suppose that it is a case in which we must begin to act. Where there is a cicatrix, sometimes the hydrostatic bags of Dr. Barnes may be used with very great effect. I have sometimes seen a case which has been three days without any dilatation, and it has only taken two or three hours to get over it with the greatest ease and safety. But where there is no cicatrix, and there is only spasmodic rigidity of the uterus, so that it will not relax physiologically, then what are we to do? Some may say, Why not craniotomise? Is craniotomy, after all, such an easy operation under such circumstances? Is it less dangerous than the forceps? I maintain that it is more dangerous than the forceps. The only danger of the forceps is that you cannot get them in, or that, having got them in and the blades on, you may stretch the os uteri like a skein of thread on the tops of the fingers. There is great anxiety and danger; yet if it is done carefully it is permissible. You see, we must do something; therefore we must face the danger. It is no use talking of the dreadful things that may arise from the use of the forceps; we must face the danger. Then we have to draw it out very slowly. Dr. Lever has invented a pair of forceps in which the shanks come so closely together that they almost touch one another, rather inconveniently sometimes; but when it was on the child's head it scarcely stretched the os uteri at all. When you bring down the rotundity of the child's head into the os uteri you have a very good dilator. What do you ask the forceps to do? No more than you ask the uterus to do. The uterus must push it out. The forceps does no more than the uterus was asked to do by expectancy. If instead of dragging the uterus down with violence you pull it down gently, supplementing each pain, you can dilate as gently as possible; and

when the rotundity of the child's head comes in you find there is no great difficulty. I never met with any great difficulty except where the os uteri was stretched like a skein of thread round the wide-spread shanks of the instrument. I had a case of a lady in the following condition requiring help. The os uteri was about the size of a five-shilling piece, slightly dilatable, and the head was coming down and occupying it pretty well, distending the cervix. When I was asked to see her, before passing the forceps I fortunately examined her, and I found the os uteri perfect for an inch upwards, but beyond this there was a large slit extending upwards on the side in the neighbourhood of the broad ligament, going as far as I could reach, the head occupying the rest. I reckoned that the head at the equator had passed the major part of the rent. The question was whether I should perforate the head or drag it down to the margin. With the forceps I carefully drew down the child's head; it did not rupture the parts. The child was born alive, and is still living. The mother had not a single symptom indicating that there was any mischief. If I had not examined the patient beforehand, and if it had been found that she had laceration, it would have been put down to the forceps. In Dr. Roper's cases it will be found that there are some cases of spontaneous laceration of the cervix uteri narrated. You must not put down to the forceps everything occurring in that way. We are to face the difficulty, and face it in the best way we can. The numerical proportion in Dr. Johnston's cases certainly does not accord with my practice. Perhaps I have not had such difficult cases to contend with, nor such irritable patients as the Irish. The Celtic nervous system is much more irritable than the Saxon, and we ought to take that into account in considering these cases. In the Celtic tribes the uterus quickly falls into a state of irritation, far more so than is the case with English women, so that Dr. Johnston may have had difficulties that we have not had to contend with. I have answered the major part of the first question in the remarks I have already made. The lower the head comes

down the more quickly will the uterus get into a state of irritation.

In the second stage, when the head is in the cavity of the pelvis, and the uterus is a little inactive, I have used ergot without fear, because, with the forceps by my side, if I find that the uterus is not equal to deliver I can supplement its efforts by the forceps. This is the problem:—Suppose that a woman can deliver herself in twelve hours; the uterus is well aroused, so that no consequences of inertia will occur afterwards; is it better to relieve her at once, or within two or three hours, or to let her go on for the whole twelve hours? Is it any advantage to let her go on in that condition? There is one advantage in primiparæ, that the parts are more slowly dilated, and the head is more slowly moulded; but in a general way, supposing the uterus to be at work, and the pains at the maximum, and an obstacle takes place, if we know that by a little traction we can bring the child out quickly, I must say I think it is beneficial both to the child and the mother, certainly to the child, to abstract it gently and quietly. It is doing no more than you ask the uterus to do, and than the uterus will have to do sooner or later, when it is violently roused. But to empty the uterus, or draw out the child—to haul it forth, as Dr. Blundell used to say—when the uterus is not responsive, is one of the most critical things a man can do. Gentlemen often fall into error in this matter. One gentleman told me that he always drew out the child directly he found any little detention. I said, "Do not you have any flooding?" "No," he said, "I do not." It puzzled me to know how he had escaped it. Afterwards he told me that he had had a case of flooding, and it was a lesson to him not to do as he had done before. That was a case of inertia, not a condition where the uterus was in full action.

In conclusion, I think, then, we may assent to the fourth proposition of Dr. Barnes. It is indeed almost self-evident that "in proportion as the head is arrested high in the pelvis in the brim or above the brim, the necessity, the utility, and the safety of the forceps become less frequent," and, "as a

corollary from the preceding propositions, increasing caution in determining on the use of the forceps, and greater skill in carrying out the operation, are called for."

Dr. CLEVELAND.—Sir, before the commencement of this debate, I should have thought, probably in common with other Fellows of the Society who have taken part in or listened to the discussions that have not unfrequently taken place here on the principles that should guide us in the use of the forceps, that it would have been scarcely necessary for us to have devoted three evenings to this subject; but I confess, after having heard so many differences of opinion, I have come to the conclusion that that idea was not well founded. I further think that Dr. Barnes has shown great judgment in drawing up with the care he has exhibited these general propositions; and I think that the last proposition, the one that has been read by Dr. Hicks, with the corollary attached to it, has not been sufficiently noticed by the speakers that have preceded me. He says that "in proportion as the head is arrested high in the pelvis, in the brim or above the brim, the necessity, the utility, and the safety of the forceps become less frequent;" and then there is the corollary, that "increasing caution in determining on the use of the forceps, and greater skill in carrying out the operation, are called for." If this means anything, it means that the operation is not to be lightly undertaken, that it is one that ought to be well considered, and only to be done by persons who are thoroughly skilled in the use of the instrument. I think the case is somewhat like that of a patient who has stone in the bladder. In such a case, the best thing is to have the stone removed, either by lithotomy or lithotrity; but it would not be the best thing possible if the operation were not done by a skilful person; the patient might live a considerable time with the stone in the bladder, and be better off than if he had the operation performed. Now, I would say that if some of us who had settled convictions at the commencement of the debate upon certain practical points, such, for instance, as the use of the forceps and compression,

have had those convictions somewhat disturbed by what we have heard from different authorities, men of great reputation, still, I believe that on the whole we shall be pretty well agreed that in a case where the head is well in the pelvis, where there is what is understood by a lingering labour, where the patient is carefully watched and appears to be kept up by suitable nourishment, if in such a case you come to a thorough stoppage, no progress being made, and you are satisfied that the uterus has done its best, I think there can be no doubt that the use of the forceps is better than any of its alternatives. But between such a case as that and the contested point where the os is not well dilated, and where arrest is above the brim, there appears to me to be a large class of cases in which great service is done by the use of the forceps. And here let me say that we have not, in my opinion, discriminated sufficiently between the long and the short forceps. There are cases in which the long forceps will reach the child and where the short forceps will not be of any avail. Sometimes, indeed, I have asked myself the question whether we should not be better off if there were no short forceps at all. I have seen practitioners waiting and waiting for the head to come within reach of the short forceps, and a great deal of time has been lost, and a great deal of danger incurred by the patient. For many years I have not used the short forceps, and I have never found a case in which the long forceps would not answer both purposes. With regard to the contested point, I may say that I think it is very rare indeed that an operation is required for purely lingering labour, but I do not believe for a moment that in skilful hands any mischief is likely to accrue to the patient by the use of the instrument if it is necessary to employ it.

Dr. DALY.—I will only occupy two or three minutes in replying to some of the figures of Dr. Roper. I have not had 10,000 cases, but in 1700 cases that have come under my private care I have used the forceps with what some people would call extreme frequency. During a practice of fifteen

years I have used the forceps in 10 per cent. of my cases, and the result of my practice has been that I have only lost two forceps cases. One was a case in which I put on the forceps for hæmorrhage, and in the other case I am sure the forceps had nothing at all to do with the death. I think it is well for the Society to know that men may use the forceps with even much greater frequency than I have done. I have been looking over the statistics of some medical men connected with this Society. Dr. Habgood, of Eastbourne, recently showed me his list of 260 deliveries. He had used the forceps in exactly 40 cases without a single maternal death and without a single still-birth. Now, if the forceps were on its trial to-night, as Dr. Roper would suppose, I do not think we should have such statistics as those. From what one has heard from the different speakers who have addressed the meeting, one really would think that Dr. Barnes's book had never been written, and that we had not your book, sir, on midwifery before us. The great value of the forceps is that they save the woman an enormous amount of suffering. I have not heard that point stated by any speaker, although I am aware you have mentioned it in a paper read to this Society. The woman goes on for hours (I am now speaking altogether of the low operation) with the head of the child resting on the perineum, and if we simply put on the forceps we relieve the woman with perfect safety from hours of suffering. I may be told that there is a risk of laceration of the perineum. According to my experience, if you give chloroform you obviate that risk. It is my rule to give a dose of ergot immediately before, and to put on the forceps if the ergot does not act. I have scarcely ever had a case of still birth at the full time. With regard to the high operation, I have used the forceps before the os has been fully dilated, thirty times with only one fatal result, and that was a case of hæmorrhage. The conclusion I should draw from my experience is that when the head is below the brim of the pelvis there need be no limit to the frequency with which we may apply the forceps, so as to save the suffering woman from unnecessary anguish,

without increasing in any degree the risk to mother or child, and that it is no more unscientific to wait for days while a mammary abscess bursts of itself than it is to wait many days while the head passes, when we can deliver the child at once by means of the forceps.

Dr. GRAILY HEWITT.—The subject of the application of the forceps is one that has interested me very much, especially in the early part of my career, which coincides with the formation of the Society. I am happy to see that the Society is in a flourishing state. No better proof can be given of the utility of the Society than the opportunity it has afforded from time to time of discussing such subjects as the present one. I may recall to the Society that one of the first papers read before it was by the late Dr. Tyler Smith, a paper in which he spoke of the abolition of craniotomy from obstetric practice.

Dr. BARNES.—When the child was alive.

Dr. GRAILY HEWITT.—The paper in question attracted great attention at the time, and Dr. Tyler Smith was much laughed at in certain quarters for bringing such a proposition before the Society at all, but I think that a great deal that we have heard in the progress of the discussion must tend to show that a practice which was then prophesied and inculcated has almost come about. We have heard gentlemen who have come before us and given us the results of their practice, and it has been shown that the number of their cases of craniotomy has become almost infinitesimal. With reference to my own experience in the matter, I may say that I went so far as to invent a new pair of forceps, which I brought before the Society three years after its formation, only unfortunately, or fortunately, as it may be considered, I discovered that my forceps had also been discovered by Dr. Beattie, of Dublin, and Dr. Pagan, of Glasgow. The forceps were quite identical. Their peculiarity was simply this, that the blades were considerably longer than those ordinarily employed, in that respect resembling very much those which, of late years, have been favourites in the hands

of obstetrical practitioners, namely, Dr. Barnes's forceps. I do not propose to go into this subject at any length. I will only say a word or two respecting some of the questions raised by Dr. Barnes in his paper. One of these points is this—Does lingering labour occur so as to entail danger to the mother and child during the first stage of labour? With Dr. Hicks I should unquestionably answer that in the affirmative. My friend, Dr. Roper, in his speech, seemed to indicate that we were discussing cases of natural labour, but, in fact, that begs the whole question. We do not know when we have to deal with a case whether it is going to be a case of natural or unnatural labour. If the head is detained at the brim, we have to ascertain what is the cause. It may turn out that it is a slight arrest, which will occasion no particular difficulty; or, on the other hand, it may turn out to be a case of extreme difficulty. We cannot, at the moment, say what is to be the issue. That constitutes the great part of the difficulty of practitioners in dealing with these cases. The case may be one in which the head and the pelvis are very disproportionate indeed, and that would only be found out by a very careful examination. In a case where there is great disproportion unquestionably harm would result; the membranes would be ruptured, and the patient would drift into the condition which has been so vividly described by Dr. Hicks and Dr. Roper. The second question is—Is the application of the forceps ever necessary or useful before the full dilatation of the cervix uteri? It has been my custom, in teaching the subject of midwifery, to lay a great deal of stress upon the definition of the termination of the first stage of labour. I think it is very important in reference to the answer to this question. What is the definition of the termination of the first stage of labour? It has generally been held to be, full dilatation of the os uteri, but it is evident to all who have considered the matter carefully, that the full dilatation of the os uteri may not occur, and yet the patient may have arrived at the end of the first stage of labour, that is to say, in cases where the membranes have been ruptured. If the head stays at the

brim there is nothing to dilate it; yet on digital examination, it may be found that the os uteri is in an exceedingly dilatable condition—a condition which does not offer any obstacle to the passage of the head through it. The obstacle is produced in fact by the difficulty at the brim itself. The osseous difficulty is the principal one, not the condition of the os uteri itself. It is necessary to consider this point if we make any definition as to what is to constitute termination of the first stage of labour. I quite agree with what has been said by several speakers in this debate as to the safety of women before the membranes are ruptured. In a case where the membranes have not been ruptured I think, with few reservations, the first stage might be allowed to go on a considerable length of time; but it is, of course, very different when the membranes are ruptured. We cannot, under such circumstances, I hold, consider the size of the os uteri simply. We must have regard to the condition of the tissues and of the os uteri in deciding as to whether anything is necessary to be done or not. The logical conclusion from that statement is, that in certain cases of this kind the use of the forceps is necessary. No doubt the number of cases in which the use of the forceps is necessary with the head above the brim is very few indeed. Still, such cases do occur. I could mention a case very much like that of Dr. Hicks, which occurred to me some years ago, where the os uteri resisted very much, but in which I inserted the forceps and gradually drew the head through it with a perfectly successful result. It took a great deal of time to accomplish. In fact, I endeavoured to imitate nature. Still, I did assist the head through the os uteri, supplementing the uterine pains. I conceive that cases do occur in which this is really necessary. With reference to the broad question as to the use of the forceps, I think that is a matter which is more interesting to the members of this Society at large than the question as to the applicability of the forceps in the high operation. Confessedly these cases are rare and unusual, but the other class of cases is very numerous indeed, and we have to consider what is the law that should be laid down in reference to the general

application of the forceps. Is it a good thing that the forceps should be largely employed, or is it proper that their use should be greatly restricted? I must say I sympathise very much with those who contend that the forceps should be very largely employed, and I think that there are abundant reasons for arriving at the conclusion. There is no stronger reason to be given in favour of that view than this: it is confessedly necessary that gentlemen who engage in the practice of midwifery should be competent to undertake severe operations. How, I ask, are they to become capable of performing a confessedly difficult operation—namely, the high operation—with the forceps, unless they are perfectly familiar with, and accustomed to, the low operation? It seems to me that the dexterity they acquire, or should acquire, in the performance of the simpler operation will invariably lead them to sufficient acquaintance with the subject to deal with the difficult and dangerous cases that will now and then necessarily come before them. I therefore sympathise very much with the view of the matter that gentlemen should be encouraged to use the forceps much more frequently than has been the custom. My friend, Dr. Savage, at the last meeting of the Society, while he interested us very much by a great many of his remarks, indulged in a style of banter, and seemed to deal with the whole subject of the application of instruments in the practice of midwifery as one that could hardly be sympathised with. I suppose we must take it for what it is worth. It comes from Dr. Savage, and we are always very much amused and interested in hearing what he has to say. I make these observations because of my readiness to admit that there is a great deal in what Dr. Savage said in reference to the necessity for allowing nature and simple remedies their proper play in dealing with obstetric cases—the use of a little time, the use of baths, and various other remedies and methods of assistance. There is, also, an observation I should like to make with reference to the method of applying the forceps. It does not follow that because we have applied the forceps the delivery should be made

to occur instantly. I think that the opposite policy is responsible for a great deal of the blame with which the application of the forceps has been visited at the hands of certain critics. I have certainly seen cases where great harm has been done by the instantaneous delivery of the child in cases where the forceps has been applied. It must be recollected that the forceps is intended simply to supplement the efforts of nature—to assist them; and we are not, therefore, to extract instantly, the very moment the forceps is applied to the head of the child. By too rapid delivery the perineum may be seriously injured.

Dr. SWAYNE.—At this stage of the discussion I will endeavour to make my remarks as brief as possible, and express no opinion not founded on facts under my own observation. Before the publication of Dr. Johnston's report as to the use of the forceps in the first stage of labour, I had often applied the forceps in the first stage when the os was not fully dilated, but never when it was less than three inches in diameter. Since Dr. Johnston's report I have used it six times in cases where it has been less than three inches in diameter, where the diameter varied from the size of a crown-piece (which is not more than one inch and six tenths) to three inches. Five of these cases were primiparæ and one of them was a multipara. The result was favorable to all the mothers and children with the exception of one child, which was stillborn, and which had the skin peeled off, showing that it had been dead for several hours; therefore the forceps could not have been responsible for the death. In all these cases the membranes had been ruptured for some hours, and the os was not fully dilated, but it felt soft and dilatable. The labour appeared to be slow, not so much from the rigid os uteri as from the arrest of the head. This was very marked in one case—that of the multipara. I had attended her in two labours which were easy, because the children were small and females, but the third labour was a difficult

one. The membranes had been ruptured four hours, and the os uteri remained about three inches in diameter. The child was arrested at the brim of the pelvis, from want of proportion between the head and the pelvis. As Dr. Hewitt has truly remarked, the labour may be said to have been in the second stage. The first stage was over—the uterus had expended its power in dilating the os, but the head did not descend. It was then expending its power in forcing down the head. I was convinced that the bad symptoms resulting from a prolonged second stage would have arisen if the labour had been allowed to go on in any of these cases. I felt grateful to Dr. Johnston for having pointed out that the forceps may be used with safety where the os is not nearly so much dilated as I thought before would be necessary, in fact, where it is not half dilated. With regard to the second subject, as to turning, and as to the alternative use of the long forceps, I do not think I can do better than refer to a case in which I induced premature labour about a month ago. In this woman I induced premature labour for the eighth time. Before she came under my care she had had craniotomy performed twice at the full time by another practitioner, and therefore I recommended the induction of premature labour. I had induced it in three labours at the seventh month, and the children were born without difficulty, but they did not survive their birth more than twenty-four hours; therefore, in the next five labours I thought it better to induce the labour at the eighth month so as to give a chance of turning, and I had every reason to feel satisfied with the result, for I saved four children out of five labours. There was no particular difficulty in turning, except in the first case and in the last. In the first case I could not get the head through in time, and the child died; the head stuck in the brim of the pelvis. In the last case the child seemed to be larger than usual, and I expected the same difficulty as in the first case, but by means of a very strong pull, making firm pressure on the gastric region, the head came through with a jerk. The child was at first stillborn, but was easily resuscitated. I

have here a cast of the head which will show the effect produced upon the child. The head is rather a large one for a child of eight months.

The PRESIDENT.—I may remind Dr. Swayne that the discussion is limited to the use of the forceps in lingering labour, and it hardly applies to cases of contracted brim or turning. Turning hardly comes under the head of our discussion.

Dr. SWAYNE.—Then I will bring my remarks to a close. I was going to say that I think in cases of this kind turning is preferable to the use of the forceps. My own experience leads me to three conclusions. First, that the use of the forceps is proper and safe before the os is fully dilated when there is any arrest which prevents it descending upon the os uteri, but in my own opinion the use of the forceps is improper where the delay arises simply from rigidity and not from arrest of the head. Secondly, where the head is arrested at the brim of the pelvis, and the pelvis is normal and not irregular in shape, as a general rule the use of the forceps is preferable to turning. Thirdly, where the pelvis is irregular, and the head very high above the pelvis, turning is preferable to the forceps.

The PRESIDENT.—I should not like this discussion to close without saying a single word with regard to the subject under consideration. It is certainly not my intention at this late period of the meeting, and after having heard so many observations, to enter at any length into the subject before us. I have frequently on other occasions had an opportunity of expressing my opinions on the subject to this Society, and I have also in my published work on midwifery, for the first time, I believe, in any systematic treatise on the subject published in this country, advocated a much more frequent use of the forceps in delivery than has been previously recommended. I believe that, partly from the one fact, and partly from the other, I have the reputation of recommending instrumental inter-

ference with a frequency which many of my obstetrical friends believe to be both unnecessary and injurious. Now, in reference to this point, I may remark that whenever I have spoken or written on this subject I have taken the greatest possible pains—I am afraid not always successfully—to point out that that recommendation is strictly limited to one particular class of cases—that is, the cases in which the head is arrested low down in the cavity of the pelvis or on the perineum, and in which only a slight *vis à tergo* is required to effect delivery. I have always endeavoured to point out that the application of the forceps when the head is high in the pelvis is a very serious operation, and one not to be lightly undertaken. As regards the alternatives, and especially the alternative which is most usually resorted to—that is, the administration of ergot—I think there is hardly any fact in medicine which is more certainly proved than the immeasurable superiority of the forceps in effecting delivery in retarded labour. No better illustration of that can be given than the observations which fell from one of the speakers at our first meeting—Mr. Alderson; and all the more so since it seemed that Mr. Alderson did not quite appreciate the deductions to be drawn from those statements. He told us that when he commenced practice he never used the forceps at all, or hardly ever, but that he used ergot very frequently. As he went on he discarded the use of ergot and used the forceps very largely. Then he told us that, curiously enough, in the first years of his practice he used to have an enormous number of still-births, and in later years he never had any still-births at all. Of course the obvious deduction was that he ergotised his patients when he commenced practice and produced these still-births, which he saved by delivering with the forceps in the latter years of his practice. So much for the use of the forceps as regards the child. As regards the mother, Dr. Daly has properly pointed out, and I have always insisted upon, the enormous gain to the mother of saving her many hours of horrible suffering and [illegible] which it is distinctly the province of the ph[illegible]

her if he can. And, above all, there is the increased safety and rapidity of convalescence, and the more satisfactory recovery following a short delivery, which I believe is a strong argument for the more early application of the forceps, in simply retarded labour than has been customary. To use a homely simile, I would say that these cases are like that of a man who has in charge a horse dragging a cart up a hill. If we are in charge of such an operation we have, as a distinguished politician would say, three courses open to us. We may either leave the wearied animal to draw his burden up the hill in the best way he can, and possibly he may arrive there or he may not; or we may spur and urge him on to increased effort, possibly with success, but more likely there will be a break-down; or we can adopt the other expedient of tacking on another horse, thus giving a little extra assistance. That seems to be exactly what we do when we apply forceps in cases of this kind. If I might make a criticism upon this debate, it would be to the effect that a great deal too much has been said about the application of the forceps before the complete dilatation of the os uteri. In talking to me the other day on this debate, having read it in the journals, a distinguished metropolitan surgeon said he was horrified to find that so obviously dangerous a practice was so customary amongst obstetricians. Now, I am not surprised at that misconception on his part, because we have been talking during these three nights to an extraordinary extent on this subject. Probably the novelty of the proposal and the apparent boldness of it have given it undue prominence in our debates; but I am satisfied that, as a matter of fact, obstetricians are not in the habit of using the forceps with an undilated os uteri to anything like the extent to which an outsider might suppose from listening to our debates. If my own experience is any guide, I should say that the cases in which it is necessary, or even contemplated, are of very great rarity. Another criticism that I might make is, that I do not think sufficient importance has been paid to the application of pressure as an alternative in cases of lingering labour—systematic pressure

applied to the uterus. I am afraid my friend Dr. Roper has not given it the fair trial which I am certain it deserves, because I believe there are few improvements in modern midwifery of really greater value than the systematic use of uterine pressure, or expression of the fœtus, as it is sometimes called in Germany. It requires a little custom and habit to know in what class of cases it is applicable, and how to apply it; but, having gained that experience, I am quite satisfied that the very greatest possible advantages may be derived from it. I have over and over again succeeded by expression, not in delivering the fœtus entirely—although I believe that even that is possible, and I have related cases of that kind in a paper on the subject,—but in pressing down the head from the brim on to the lower part of the pelvis, and thus converting what might have been a very difficult high forceps case into a perfectly simple low forceps operation. The subject would require a great deal of time to discuss with anything like the detail which its importance merits; therefore I do not say any more about it at present. It now only remains for me to fulfil a very pleasant duty, which I am sure I shall have the authority of the members of the Society for performing—that of offering to the gentlemen who have taken part in these discussions, especially to those gentlemen who have done us the honour of coming from Ireland and Scotland and distant parts of the country, our cordial thanks for their kindness in favouring us with their experience on the subject.

Dr. Barnes.—Allow me to say, in the first place, that I think the interesting discussion we have had, and the eminent men who have spoken, testify to the importance of the subject, and are a complete answer to any doubt that may have been felt as to the utility of a discussion on the forceps. Then I may urge as another reason that we have had a complete picture of what may be called the modern practice of midwifery with the use of the forceps, in contrast to the picture presented by a gentleman who went to sleep twenty

years ago when they did not use the forceps, and who has come here and delivered a Rip van Winkle sort of speech, telling us that we are all wrong, expecting, as it seems, that the world has been standing still while he has been asleep. Now I should like to say a word or two about the definition of the high operation, which appears not to be thoroughly comprehended. The terms "high" and "low" operation have been introduced by Dr. M'Clintock, but I should prefer to make a division into three operations. First, there is what may be called the low operation, performed entirely in the second stage of labour when the head is in the pelvis: that I should prefer to call the *intra-pelvic operation*. Then there is another class of cases a little higher up, where the head of the child is in the brim: that I should call the *brim operation*, as distinct from the low operation and also from the high operation, where the head is above the pelvic brim, which may be called the *supra-pelvic operation*. As to the state of the os uteri in the advance of labour, as fitting it for the operation, we will discuss that by and bye. The numerous cases that occur of arrest of the head in the pelvic cavity I will not dwell upon now. There is a general consensus of opinion and practice as to the propriety of not letting the head lie in the pelvis very long. At the same time I should say that the practice mentioned by Dr. Daly and some others, of putting on the forceps as soon as the head is within reach, or nearly so, is not good practice. So long as the uterus is acting fairly without spasmodic action, the head advancing slowly and the parts relaxing, and you know that the patient will be delivered in a few hours without any great tax upon her powers, and so long as there is a quiet, regular pulse, I say it is not judicious to use the forceps. I say it deliberately, though I can well understand that where a man is in a hurry to get away, and he thinks the patient is suffering because, perhaps, he suffers himself, he will put on the forceps too soon. I quite sympathise with what Dr. Hewitt has said, that it is allowable to put on the forceps sometimes in cases where it is not absolutely necessary, with a view to acquire the skill requisite

to enable the practitioner to undertake more severe operations. I see no great harm in that, but I should like to say a word or two on what may be called the ethical side of the question. I should generally concur in what Dr. Thorburn said, that we are not to put on the forceps for our own convenience, but solely under circumstances in which the instrument is required by the patient. But there is another aspect of the question. We must bear in mind that the country practitioner has the charge not of one patient only, but of a number of others who have no resource but in him. Now, if he spends a great deal of time over a multipara, with the child's head in the pelvis, knowing that he can apply the forceps and deliver in a few minutes with perfect safety, and perhaps advantage, and knowing that he has an urgent case a little further off requiring instant attendance, I say he is justified in doing it. That is not regarding simply his own convenience, but the interests of his patients. We are not to look at a country practitioner in the same light as we should regard a practitioner in town, where we could put another person in charge and go on to the more urgent case. So that the principle I have mentioned must be taken with some qualification and reserve. There are cases in which intervention is necessary. I am speaking now chiefly of intra-pelvic cases where the child is delayed in the pelvis, and where expectancy is exhausted. As to the employment of the ergot, I should like to dismiss that at once as an alternative to the forceps. I should indeed like to extend what I am going to say to the general application of ergot, whether in intra-pelvic, brim, or supra-pelvic cases, although the impropriety of using ergot increases enormously as we ascend towards the higher cases. I can hardly refer to the evidence of Dr. M'Clintock, Dr. Bassett, and others who approve of ergot, without considerable diffidence. On the other hand, we know that Dr. M'Clintock does not rely so much upon the forceps as I do and as many others do, that he has not acquired that confidence in the instrument that we have. He trusts to ergot, and I think he trusts to it too long. I was glad to hear

several speakers object to it, and that our President as a rule does not approve of it. There is now a considerable amount of evidence showing that ergot is not to be trusted. I agree with Dr. Edis that ergot should not be given when the patient is beginning to flag, for that is the time when ergot is most dangerous; that is the time when the woman is exhausted and wants help, and ergot does not help her, but the forceps will. This applies strongly to the arrest of the head in the brim or above the brim; it is just then that we cannot tell what difficulties may arise in the further progress of the head, and if you give ergot you may do mischief by rupturing the uterus or increasing exhaustion and pressure on the soft parts. Although we may be justified in giving ergot when the head is nearly on the point of being born, we are not justified in giving it in any of the higher cases. I say this the more especially because there is nothing that ergot will do in these cases that cannot be done more safely and effectively by the forceps. In these cases we had better give up ergot, and trust to the forceps. I say nothing as to the use of ergot in arresting hæmorrhage, because that is beyond the present question; nor will I dwell upon the question whether it injures the child or not. The President has quoted the evidence of Mr. Alderson. I believe there is a great deal of evidence to show that ergot is attended by larger fœtal mortality than the forceps in cases where one might be used instead of the other. With regard to the alternative of expression or squeezing out, I was rather glad to hear the emphatic protest against it from Dr. Atthill, and also from Dr. Roper, who equally condemned it. I do not gather from the President's observations that he entirely approves of it as an alternative *per se*, as the sole means of effecting delivery, but he recommends it rather to assist the forceps or other means. I was house-surgeon to a lying-in hospital thirty-five years ago, under the late Dr. Bloxam, and I remember having impressed upon me the importance of expression or squeezing out or down in all stages of labour. I always understood that he recommended it on the authority of the Dublin

school. His practice was to follow the child down even in natural labour, and *à fortiori* in every case where the forceps was put on, where craniotomy was resorted to, and where turning was effected. I have always adopted that plan with advantage. It reduces to a minimum the necessary *vis à fronte* traction, and in that way equalises the pressure, shortens the labour, and diminishes the danger. The same practice was adopted in my time at the Queen Adelaide Hospital with regard to the placenta as soon as the child was born, waiting perhaps two or three minutes in order that the patient might recover a little strength. Nothing therefore has astonished me more of late years than to see this plan raised into the position of an invention, with the name of a German professor attached to it. It is necessary to say a word or two upon the statement that it is especially in the second stage of labour that the free use of the forceps as a means of accelerating labour that would otherwise terminate naturally may be justifiable, but we must be careful not to apply this practice to the first stage of labour. We have heard the subject discussed in reference to the first question, "Does lingering labour occur before the cervix uteri is dilated during the first stage of labour?" Dr. Hicks answers that emphatically "yes," and Dr. Hewitt says "yes;" I have not the smallest doubt of it. As to the statistics and arguments derived from the Rotunda Hospital in the time of Dr. Collins, or those which Dr. Roper adduces, let me ask what is the history of a number of cases of rupture of the uterus in the first stage? I am talking of cases where there is no disproportion, no contraction of the pelvis, no undue size of the child, and in some instances no malposition of the child; the uterus may be distended with fluid, and mischief may arise at that time; but it is far more likely to arise when the liquor amnii has gone off, and when we are getting a little perversion of the natural order of labour in the first stage, and when irregular forms of contraction and trismus are apt to come on. Then you get arrest of labour because the uterus cannot act in its natural way; it compresses the child; it does not drive it on. If these cases are not treated

properly great mischief arises; the patient may recover from the labour, but she has afterwards a bad convalescence (perhaps she goes into septicæmia or fever), and she is in danger, and the child is in danger. I will say a word or two as to how to meet those cases. Expectancy is bad if trusted to alone. Expectancy is only letting the uterus drift further and further into this disturbed and difficult action. If you give opium you can give some relief, chloral still more, chloroform still more; but there is a remedy beyond all these, and that is nitrite of amyl. There is nothing that allays uterine or other muscular spasms so well as that; in two or three minutes you may subdue the trismus, relax the uterus, get on the forceps, and deliver the patient. Now, when we are talking about the free use of the forceps, we must bear in mind that almost all the evidence we have heard applies to the low operation, the intra-pelvic operation, except in the case of Dr. Johnston, Dr. Hicks, and a few others who have had more extended experience. We have heard a Scotch professor telling us of the keynote being struck in Scotland, but we must remember that obstetric experience is a matter of population, and the whole population of Scotland is not equal to that of London. It is not to the land of the mountain and flood that we are to look for opportunities of acquiring experience in midwifery of this difficult kind; it must be in the great centres of population—London, Manchester, Liverpool, Birmingham, Dublin; and it is in those towns that the longer forceps have come into use. If we want to practise the high operation we must have the forceps long enough. The Scotch instrument is not long enough. Let us call the instruments themselves in evidence. Here is a specimen of the instrument used by Dr. Ramsbotham. It is something like the instrument of Dr. Simpson, which is a little longer. Dr. Simpson's has a double curve, which is a great improvement; but the double curve does not make the short forceps long. I have used it when I have not had an instrument of my own. It will not do where the head is

lying upon or above the brim of the pelvis. It will do for brim operations, but not beyond that. With regard to the argument based on the instrument itself, I will quote what Dr. Simpson says in his notes of his lectures:—"Never apply the forceps until the os uteri is fully dilated, and until the head is in the pelvis." There is the practica commentary upon his forceps. He tells you to follow the practice that is within the power of his instrument, and that is very natural. We have an illustration of the same point in his celebrated papers upon turning in contracted pelvis. The reason why he turned was because he had not forceps long enough to get at the head, and he had no resource but to turn. That is why turning was advocated by him in preference to forceps. Here in London, in Dublin, and in the larger towns, if the head is upon the brim of the pelvis and accessible to the long forceps, we prefer dealing with the child's head first instead of turning it. Although I admire his paper upon that subject, and often turn in cases of contracted pelvis, it has been where there is such a degree of contraction that the forceps will not drag the child through. Dr. Lever, who practised in London amidst a large population, contrived a long forceps for difficult cases. I have here also a specimen of a long forceps contrived by Dr. David Davis, who also worked in London. It is a singular instrument, with one long blade and one short one. His son also, who, I am happy to say, is recovering his health, having similar work to do in London, contrived a beautiful pair of forceps, sixteen inches and a half long, with parallel shanks. You can use the instrument with both hands, so that you have enormous power, and can regulate your work with the utmost accuracy. In Manchester a similar thing has been done by Dr. Radford, who has contrived a long forceps with parallel shanks. Dr. Roberton has done the same thing, but his instrument is not so good. I began to use short forceps in my early practice, but I soon gave it up, and I contrived the long forceps now used so extensively in Dublin. You can hold it with both hands and distribute the force with accuracy,

and it will fetch a head above the pelvis. The high operation, therefore, is an operation of English origin, not Scotch. But in truth the long forceps is of French origin. Although they have in Scotland a great amount of time for dogmatic teaching, they have not so many cases to practise upon. I will not say anything more about the saving of infant life, because that has been dwelt upon by others. With regard to the evidence of damage in the first stage of labour to the mother and child, we have the statistics of Dr. Churchill, quoted as they have been by Dr. Kidd and others, as proving that no damage comes during the first stage of labour; but they are worth very little. I think that all those who have studied midwifery clinically will agree that there never was so much honest labour misspent as in the compilation of Dr. Churchill's tables, and never so many fallacies accepted as facts. We know very well that mischief may arise in the first stage of labour, and it is our business to anticipate it by the timely and judicious use of forceps. There are a number of cases where delay, occurring in the first stage of labour from premature escape of the liquor amnii, may be followed by this difficulty.

Dr. AVELING.—I am sure Dr. Barnes would be the last to wish that any error should be published with reference to the forceps of Dr. David Davis. Those that he has referred to are exceptionally long. He had a long pair of forceps very similar to those of his son.

Dr. BARNES.—I may say that Dr. Hall Davis himself gave me those instruments a day or two ago. Coming to the high operation, we are dealing with a matter of great and serious importance, and we are not to indulge so lightly in the use of the forceps as in the case of the head being delayed in the pelvis. There are two classes of cases of arrest of the head in the brim. There is the first class, where the arrest is due to disproportion. Either the head is too large, or the pelvis is too small, or there is malposition. In those cases we do not always know what the

cause of arrest is until we have had time to observe and to put the patient under chloroform. Those cases are beyond our present consideration. Putting them aside, I admit that the cases which remain, in which there is no disproportion and no malposition, in which there is arrest of the head above the brim, are not of very frequent occurrence, and that is the only class of cases where we still have it open to us to apply the forceps. Therefore, I say again that the last proposition put forward, that the utility, necessity, and the safety of the forceps become less frequent as we ascend above the pelvic brim, is untouched, and it has received confirmation from Dr. Hicks, and those who have experience entitling them to speak. With regard to craniotomy I do not think we have evidence enough that the dream, the justifiable and scientific dream, of Dr. Tyler Smith, that craniotomy is on the point of abolition, is about to be realised. I do not think we have got so far as that. I never thought we should; but we have been tending towards it. That is one of the great evidences we have of the progress of scientific midwifery in this country, that we are diminishing craniotomy year by year. There is no possible record of experience that can now be adduced in the practice of the last ten years that could in any way parallel the evidence brought forward as to Dr. Robert Lee's practice. There is nothing to be compared with it, and I say that it is due to the extended use, not only of the ordinary forceps, but of the long forceps. In former times, when the head was arrested at the brim of the pelvis, when the long forceps was not used, there was nothing for it but to perforate. Now the long forceps will reach those cases, and thus prevent craniotomy, just as the more frequent use of the forceps saves the child when it is lower down. I think that the alternative of ergot will gradually be exploded. It is not an alternative to the forceps in the cases where it is justifiable to use it. And craniotomy as an alternative will diminish more and more as we acquire more skill in the use of the forceps, as we improve the instrument and give it more power. At the same time it is an instrument liable to abuse; but it is the

glory of English midwifery to improve and to carry it up to the highest state of perfection, and the more we do that the more we shall justify this country as the country where the forceps was invented.

Thanks were then given to Dr. Barnes for his valuable paper.

OCTOBER 1st, 1879.

ALFRED WILTSHIRE, M.D., F.R.C.P., Vice-President, in the Chair.

Present—32 Fellows, and 1 visitor.

Books were presented by Drs. C. Belluzzi, H. Burckhardt, H. Chaignot, H. Fritsch, Geo. E. Herman, George Hoggan, Jude Hue, F. Marchand, P. F. Munde, W. S. Playfair, J. Shortt, Albert H. Smith, Isaac E. Taylor, A. Valenta, Ad. Wasseige, J. P. White; the Council of University College, the Obstetrical Society of Leipzig, the American Medical Association, and the Smithsonian Institution.

John Storrs Brookfield, M.D., was admitted a Fellow of the Society; and William Rd. Grove, M.D. (St. Ives), and Geo. E. Moore, M.B. (Maidenhead), were declared admitted.

The following gentlemen were elected Fellows:—Reginald Clarke, M.R.C.S.; Tho. M. Dolan, F.R.C.S. (Halifax); Arthur G. Elkington, M.R.C.S.; T. Wood Hill, L.R.C.P. Ed.; Wm. Beech Johnston, M.D.; Chas. H. Jouberd, M.B. (Calcutta); David Macneilage, L.R.C.P. Ed. (Durham); Geo. H. Mac Swinney, M.D.; Henry Reeve, L.S.A.; Wm. L. Reid, M.D. (Glasgow); Walter H. M. Smith, L.R.C.P. Ed. (Croydon), and William Walter, M.D. (Manchester).

The following were proposed for election:—J. M. Biggs, M.R.C.S.; Wm. J. Bonnor, M.R.C.S. (Enfield); Alex. F. Churchill, M.D. (Aldershot); Geo. Hoyle Cowan, M.B. (Ontario); George Harvey, L.R.C.P. Ed. (Wirksworth); James

Muir Howie, M.B. (Liverpool); Henry N. MacLaurin, (Sydney); Emilius R. Nicholson, M.D.; Theophilus Wm. Pauli, L.R.C.P. Ed.(Luton, Beds.); and Thomas Raitt, M.D. (Woolwich).

CHOLERA IN THE NEWLY BORN.

By Dr. JOHN C. LUCAS, F.R.C.S., &c.,
SURGEON H.M. INDIAN ARMY.

(Communicated by Dr. J. MATTHEWS DUNCAN.)

THE following cases seem to be of some interest both to obstetricians and to cholera pathologists.

CASE 1.—On the 18th April, 1878, a case of cholera occurred in the person of a soldier of the 14th Regiment Native Infantry, doing duty at Kaladgi in the Deccan (one of the endemic areas of malignant Asiatic cholera in India). The man was attacked in his quarters in the regimental lines at 9 a.m., and died the same day at 3.15 p.m. He had two wives who lived with him, and both nursed him during his short fatal illness. Both these women were between the ages of twenty and thirty-five, but neither of them was at the time in the gravid or recently confined condition. They both escaped from cholera. Simultaneously with this case, a woman, the wife of a non-commissioned officer living in the same lines, but having separate quarters about twenty yards distance, was noticed by me to be suffering from cholerine—cholera-like diarrhœa. I observed that she was far advanced in the gravid state, and from inquiries I understood that she was in her eighth month. She was about thirty years of age. I adopted measures both to check the diarrhœa and to prevent premature delivery. In the former I succeeded, but in the latter I signally failed, for on the fourth day from the commencement of her illness, and the day after the purging had ceased, she was delivered of a living fœtus; the labour was breech presentation, but easy and

effected by natural efforts, without any interference being called for. The infant, almost instantly after it was born, was attacked with purging and vomiting; the dejections being those characteristic of specific cholera, and lived only about an hour and a half altogether. I ascertained carefully that it was not even put to its mother's breast, nor was anything given it. The woman recovered.

Case 2.—The wife of a native officer of Her Majesty's 24th Regiment Native Infantry stationed at Agar in Central India was attacked with cholera during the prevalence of an epidemic in June, 1878. She was twenty-seven years of age, and was at the time suckling a child five months old. The child escaped entirely from cholera, although it was put to the mother's breast during her choleraic illness.

The wife of another native officer living opposite and about twenty feet distance, who was twenty-four years of age, and near the full term of pregnancy, was attacked. On the third day of the disease she was delivered spontaneously. The child was alive and healthy looking; it was put to the breast by the friends, which it took readily; twenty hours after birth, and after it had taken its mother's milk, symptoms of cholera with the characteristic dejecta—and in the child's case it appeared to be suffering from cramps in the legs and belly—and with convulsions rapidly supervened and terminated its existence nine hours thereafter. The mother recovered. The child took nothing else but its mother's milk.

Remarks.—The points of interest may be divided into (*a*) maternal and (*b*) fœtal.

(*a*) Maternal.—Does pregnancy or the parturient state render women more susceptible to the specific infection of cholera than others equally if not more exposed to the infection? With regard to other zymotic affections such as enteric fever my experience teaches me that it does so most certainly. The first case which led me to this view occurred in the autumn of 1872. I have noticed the same peculiarity in regard to scarlatina,* and since, with smallpox.

* *Vide* 'Med. Times and Gazette,' 1875, p. 386.

Logically speaking, the two women mentioned under the head of Case 2, and the one who was prematurely delivered, and whose child had died of cholera, mentioned in Case 1, cannot be said to have been more exposed to the virus (whatever its chemical or physical nature may be) than the two wives of the man who died of cholera. In the latter case the females drank the same water and partook of the same food, breathing the same air almost, in short, they were under precisely, or almost precisely, similar hygienic conditions as their husband. In addition, these women were exposed to the poison of cholera from the dejections passed by their husband, and yet neither of them took the disease.

(*b*) Fœtal.—(1.) Were these two cases those of genuine cholera Asiatica in the newly born? On this point it may be stated that there was not the slightest doubt. (2.) How was the specific virus conveyed with reference to these two premature infants? In the case of the one, the offspring of the wife of the non-commissioned officer described under Case 1, there was nothing given to it, nor was it even put to the breast, so that its mouth was not brought in contact with the possibly tainted nipple of the mother's breast. (3.) Was the poison in the cases of the two newly-born infants conveyed through the maternal circulation with the incubative periods in utero? This, to me, seems the most plausible view; unless we can believe that during their births the mouths came in contact with the maternal anus or perineum, and where there was cholera evacuation, and the affection rapidly developed. Is this possible? (4.) Was the poison, in the case of the second infant, conveyed through the medium of the mother's milk and taking effect instantly? If so, how came it to be that in the case of the first woman, who nursed at the time a child five months, the latter never even had anything approaching to cholera, and is still alive? I find that at the very time of her choleraic attack this woman had suckled her child. No chemist or microscopist has yet been able to determine the precise nature of the poison of this dire malady, but it may

be that in the multifarious fields of gynæics the right path might be discovered.

Dr. Braxton Hicks exhibited, for Dr. R. P. Harris, of Philadelphia, photographs of a dwarf upon whom the Cæsarean section had been performed during her labour, and who had died three days after of peritonitis.

DEFICIENT DEVELOPMENT OF THE UTERUS; ATRESIA OF THE OS EXTERNUM; ATROPHY OF THE OVARIES; INSANITY.

By Alban Doran, F.R.C.S.

In the summer of 1878 a woman, æt. 38, died of bronchitis at Bethlem Hospital. When nineteen she was a healthy young woman, of rather attractive features, and at that age is said to have menstruated once, which was for the first and last time. She then changed entirely in appearance, grew much taller, and became very masculine. No hair appeared either on her face or pubes, and her mammæ did not develop. Her features became so repulsive that she shunned observation, which she feared so much that the very idea of it preyed on her mind, and ultimately produced insanity, though not till a few months before her death. Admitted into a private asylum, she assaulted a female nurse and a female patient, and was transferred to Bethlem Hospital, where she soon died of pulmonary disease. Dr. G. H. Savage made a post-mortem examination; he found bony growths from the middle cerebral fossa pressing on the cerebrum. "On passing a sound up the vagina," he remarks, "there was found in the place of the uterus a slight thickening, and the lateral ligaments and ovaries were only to be traced in thickened lines of tissue.' The external organs were quite of the female type. No

clitoris was visible; a fatty tumour the size of a filbert was found in the right labium.

The complete mental history of this case is described by Dr. G. H. Savage in the 'Journal of Mental Science' (vol. xxiv, p. 459). That gentleman kindly presented the undissected internal organs of generation to the museum of the Royal College of Surgeons. I made a dissection of the parts, which is the specimen now brought forward; it is marked 454A, Teratological Series.

I found the bladder much dilated, without any hypertrophy of its walls; the subserous tissue beneath its peritoneal investment was loaded with fat. The rectum and perineum were normal. The vagina, when unstretched, measured two and a half inches from the vulva to its upper extremity. The rugæ were very well marked at the inferior anterior portion, but elsewhere they were almost entirely effaced. The orifice of the vagina was circular, and measured three quarters of an inch in diameter. The canal widened to an inch and a half in the middle, above which it rapidly contracted to an apex marked by a pin-hole aperture, which was perfectly impervious, and represented the os uteri. There was no posterior vaginal cul-de-sac, but a digital pouch, a quarter of an inch deep, existed to the left of the apex of the vagina.

The uterus measured two inches from the fundus to the rudimentary os uteri; the cervical portion was an inch long. The fundus was one inch and an eighth in breadth. When fresh the uterus felt like a flaccid, thin-walled cyst. Its cavity contained half a drachm of a white, grumous, semi-fluid material, like sebaceous matter. The most prominent feature about this organ was the thinness of its walls. A quarter of an inch below the fundus posteriorly, they were only one sixteenth of an inch in thickness, and did not measure more than an eighth of an inch at their thickest part. The os internum was very well marked, and wide enough to admit a crowquill. The canal of the uterine part of the cervix was quite patent, nor was the arbor vitæ wanting. This canal was completely occluded below, and separated

from the pin-hole aperture by a thick septum; hence there was atresia of the os externum, and complete absence of the vaginal portion of the cervix.

The Fallopian tubes were normal. The right ovary was two inches long and a quarter of an inch measured vertically; the ligament was very thick. The left was an inch and a half long. On section a minute cyst was found within it, but in neither ovary could a trace of any Graafian vesicles be detected. A few minute papillomatous outgrowths were scattered over the peritoneal covering on both sides.

This specimen illustrates the malformation known as *uterus fœtalis* in Kussmaul's exhaustive treatise, 'Von dem Mangel der Gebärmutter.' In the fifth chapter of that work a long series of cases of this malformation is described, and the author's conclusions will aid us in the consideration of this particular case, which I now bring forward.

Kussmaul finds that in the *uterus fœtalis* the length of its neck exceeds that of its body. Indeed, the latter may be not much larger than a pea, or the Fallopian tubes may open almost immediately into a well-formed cervix. In this case the neck was half as long as the body, when normally it should be but a third its length. The disproportion is greater than at first apparent, since the vaginal part of the cervix is absent.

Again, this specimen verifies Kussmaul's statement, that "the os internum is, it appears, as a rule, scarcely narrower than the canal of the cervix" in this class of malformation. The extreme thinness of the uterine walls, so well marked in this specimen, is reckoned by Kussmaul as the most distinct feature in a *uterus fœtalis*, next to the shortness of the body. He also shows that ill development of the vaginal portion of the cervix is frequent. Its absence, as shown in this case, is unusual. One instance of its complete deficiency is described by Morgagni. The patient was a widow, aged 66, of short stature. The deformity was detected in her lifetime, but a distinct, pervious, although very narrow, os externum existed.

Ill development of the mammæ, observed in this case,

appears to be the rule. In most instances the patient is small; but Kussmaul quotes a case, described by Merkel, similar, in many features, to that now under our consideration. The patient was big and coarse; moreover, the orifice and also the upper extremity of the vagina were unusually narrow. The deformity, too, has been seen in conjunction with cretinism. Just as in this case, the patient was insane.

The perfect development of the middle part of the vagina is remarkable, and the lateral pouch at the upper termination of that canal is probably a rudiment of the cul-de-sac, which could not be complete owing to the absence of the vaginal portion of the cervix. The imperfect condition of the os externum is singular when we remember that the canal of the rudimentary cervix is of the normal width.

A CASE OF CONGENITAL INGUINO-OVARIAN HERNIA (DOUBLE). OPERATION. RECOVERY.

By Thomas Chambers,

SENIOR PHYSICIAN TO THE CHELSEA HOSPITAL FOR WOMEN; CONSULTING PHYSICIAN ACCOUCHEUR TO THE WESTERN MATERNITY, ETC.

History.—Emily D—, a housemaid, æt. 24, was born in Dublin. She has had a lump in each groin as long as she can remember; they have always been painful after running or walking any distance.

When twelve years old she was taken to Sir Patrick Dun's Hospital, having fainted in the street. While there the doctors discovered the lumps, and as they could not be "put back," a double truss was ordered for her. This, however, could only be worn occasionally, as it caused so much pain, and at the end of a month it was finally discontinued in consequence of the lumps becoming blistered from continued irritation and pressure. From this time they

Dr Westmacott del.t et direx.t

lith.

gradually became larger and more painful from year to year.

When about 17 she was taken to the Rotunda Hospital and admitted as an in-patient; she remained there three weeks, but as nothing was done for her beyond being daily examined, she asked to be discharged.

At 19 she came to London; the lumps still continuing painful and inconvenient. She had been in London about five years when a friend advised her to apply to the Chelsea Hospital for Women, as she "had never been unwell;" while the lumps were more painful and uncomfortable than they ever had been before, so much was this the case that she was unfitted for her duties as a domestic.

She was admitted under my care, March 15th, 1879. She was tall—five feet nine inches, having a well-developed female bust, was rather good-looking, though she had a kind of melancholy in her expression of face most difficult to define.

Her hair was dark brown. Eyes hazel, having a languid appearance. Her voice was feminine though not musical. The breasts were well-developed and rather above the average size for a person so thin. The nipples were absent, their site being marked by a circular rose-coloured spot the size of a threepenny piece. She never menstruated or suffered from leucorrhœa or periodical pains about the pelvis.

In each groin there was an oblong body, irregular in outline, and very movable, directed obliquely downwards and inwards, the lower inner margins resting against the outer borders of the recti muscles. The right tumour measures 3 × 2½ inches, the left 2 × 1½ inches. They were tender and sensitive to the touch; they have always occupied their present position as long as the patient can remember. They have been painful at times for several years, more especially during the last three or four, when accidentally knocked, which not unfrequently happened when engaged in her domestic duties.

March 19th.—She was placed under chloroform in order that a careful examination might be made of the internal

as well as of the external organs of generation, and for this purpose she was placed in the lithotomy position. The first thing noticed was the total absence of hair from the pubes. The mons veneris was not very conspicuous. The labia majora were small and free from fat. The clitoris was small but well formed, while the nymphæ were rudimental. The vagina was a smooth cone-shaped opening about an inch in length, having its cone directed upwards behind the pubes, terminating in a cul-de-sac.

At the roof of this cul-de-sac there was a triangular opening, having its apex upwards and forwards, large enough to admit the end of the index finger; this opening performed the office of meatus urinarius, its orifice was irregular and granular. There was no history of incontinence or of irritable bladder. This rudimentary vagina contained no trace of the os or cervix uteri, neither were there any vestiges of hymen or carunculæ myrtiformes. The most careful examination, bimanual, and per rectum, failed to make out anything resembling either uterus or ovaries. A catheter in the bladder and two fingers in the rectum which, by the way, was especially capacious and elastic, showed a total absence of any intervening viscus. The examination was carefully repeated by four individuals, all of whom failed to detect either uterus or ovaries within the pelvis, which was large and well formed on a female type. The patient had never experienced any sexual desire as far as she could understand the subject, though she had a male friend to whom she was much attached. It may be objected that the absence of the uterus cannot be correctly diagnosed without the introduction of the hand into the rectum.

I think such excess of zeal as undesirable as it is unnecessary.

Kussmaul, however (Wurtzburg, 1859), is of opinion that absence of the uterus *cannot* be satisfactory made out in the living woman.

The patient had the external appearance of a well-formed female except in the organs of generation—the external being small and ill-defined, while the internal were either alto-

gether wanting or of doubtful character. She was supposed to be the subject of hernia of both ovaries, complicated, perhaps, with absence of the uterus—absence of menstrual molimen afforded circumstantial evidence favorable to this opinion. But a minute examination carefully conducted while the patient was under chloroform raised the question as to whether this was not an example of that rarer form of hermaphroditism called " transverse hermaphroditism, with the external parts female."

Leopold records a somewhat similar case, where the external sexual organs were those of a female, and the general type or outline feminine, while the tumours in the groins were testicles. In 1873, Hauff made a post-mortem on a woman, aged 51, in whom he found no trace of uterus or ovaries, while the vagina ended in a cul-de-sac. She had, however, a fine handsome well-made female form and pelvis. The external genitals were rudimentary and without hair. Sexual desires were said to have been present during life. These facts may be regarded as a sufficient excuse for my asking the Society to appoint an independent committee to examine and report upon the tumours which form the groundwork of this report.

As the examination clearly demonstrated the absence of vagina as well as uterus, the question naturally suggested itself, " What ought to be done with the tumours in the groins? "—presumed to be ovaries. In order to be clear as to the best answer to be given to this question, a second examination was directed to the groins, when it was discovered that the left ovary, or tumour, had suddenly disappeared through a small annular opening, having very sharply-defined margins at a point which marks the tendinous opening of the oblique muscle. This is a most interesting and suggestive fact, as on three occasions, without chloroform, careful, but unsuccessful attempts had been made to return the tumours, while the left one spontaneously disappeared as soon as chloroform was brought into full play. What were the exciting causes? traction of the pedicle or relaxation of the annular opening? or a combi-

nation of the two? The tumour reappeared on the second day. There being neither vagina nor uterus, the ovaries—if such they were—were regarded not only as useless but worse, inasmuch as they were the constant source of pain, irritation, and annoyance. These facts being explained to the patient, she was quite willing that they should be removed.

26th.—At 3 o'clock she was placed under the influence of ether, care being taken to prevent the left ovary from again disappearing, and in order to be quite sure on this point, it was removed first by an oblique incision (under antiseptic spray) two inches in length, made in the long axis of the tumour. The skin and fibrinous structures having been divided by the knife the cellular tissues were separated by the handle and fingers; this being accomplished, the tumour was easily pressed out of its bed, enveloped in a fibrinous capsule which formed a pedicle more than an inch in breadth. It became a question whether this capsule should be divided and left in the wound or transfixed and tied; the latter course was adopted. There was little or no bleeding, only one small artery requiring ligature. The right ovary having been removed in the same way and under similar circumstances, the wounds were closed by five silk sutures on each side, the two uppermost transfixing the pedicles and securing them in the wounds. They were dressed with lint dipped in glycerine containing ten per cent. of carbolic acid. covered with oiled silk and overlaid with carbolized gauze and cotton wool, secured with a flannel bandage held in position by a perineal band. A suppository was introduced, and the patient put to bed on her back with her thighs flexed and supported by pillows. The cold produced by the continuous spray was very great, and notwithstanding the free use of hot blankets and water bottles, complete reaction did not take place for several hours.

9 p.m.—Reaction fairly established; has vomited several times, which produces great forcing pains in the wounds. When not vomiting she suffers from intense dragging pains in the wounds, more especially in the left; this was so intense as to cause her to cry hysterically. I introduced twenty

grains of Pil. Saponis co. into the rectum and gave twenty drops of opium by the mouth; to suck ice or drink small quantities of barley water to quench thirst.

As she had not passed urine since the operation, I introduced a catheter. This was a much more difficult operation than is usually the case, in consequence of the unusual position of the meatus and the direction of the urethra.

12 p.m.—Pains greatly relieved, has slept an hour; to repeat opium if the pains return.

27th.—Opium was once repeated; has, on the whole, passed a fair night. Temp. in rectum 102°, pulse 114. Diet, milk, beef tea, and barley water. The opium to be repeated if the pain returns (Ext. Opii, gr. j), not otherwise.

April 2nd.—Has progressed satisfactorily since the last report. Temp. 99°, pulse 92. Can take food and sleeps well; is much more cheerful and contented. Dressed the wounds to-day for the first time. The lower two thirds of both wounds had healed, but the upper third, where the pedicles were secured, were inflamed and moderately painful when touched; when the sutures were removed the sloughing stumps of the pedicles were visible, and there was a moderate discharge of fairly healthy-looking matter from the left wound, while the discharge from the right side was dark and mixed with blood. The wounds were dressed with carbolic lotion.

4th.—A large slough was removed to-day from the left side with one of the ligatures, the knot being undone. The discharge from the right side is dark, grumous-looking stuff, having the appearance and smell of menstrual fluid. General health improving.

11th.—The left wound continues to slough, but is not offensive; the second ligature came away to-day, the knot being perfect, as when first applied. The discharge from right side much the same, though less in quantity; the wounds contracting with exuberant granulations; dressed with solid nitrate of silver and dry lint.

17th.—Progressing satisfactorily; left side all but closed. Right side still granulating excessively, with a little oozing

matter. Introduced director, which passed obliquely downwards and inwards for more than an inch and a half, opened in its whole length, and the wound filled with dry lint.

22nd.—Left side closed and covered with a scab. Right side much better, wound contracting; in each angle there is a white point like consolidated lymph; these, however, proved to be the two ligatures with which the pedicle had been secured, the one perfect, while the other had given way at a point directly opposite to the knot.

25th.—Wounds closed. Sitting up for the first time. General health good, but feels weak from long confinement to bed.

30th.—Discharged from hospital cured.

The left breast has almost disappeared, while the right remains about the same as before the operation.

The literature of ovarian hernia is but scanty. Many authors omit the subject altogether, while others refer to it in so casual a manner as to render their remarks devoid of interest as well as of information:—'Lawrence on Ruptures;' Holmes, 'System of Surgery;' Gross, 'System of Surgery;' Gant, 'Science and Art of Surgery;' Simpson, 'Diseases of Women;' Hodge, 'Diseases of Women,' and Byford, 'Diseases of Women,' omit the subject altogether; while Churchill, 'Diseases of Women;' West, 'Diseases of Women;' Thomas, 'Diseases of Women;' Graily Hewitt, 'Diseases of Women;' Schroeder, 'Diseases of Females;' Erichsen, 'Science and Art of Surgery;' and Scanzoni, 'Diseases of Women,' mention the accident as a possibility, having no personal experience, but advancing that of Pott, Deneux, and other old writers.

Pott, 'Surgical Works,' 1775, p. 791; Meadows, 'Trans. Obst. Soc.,' 1861, v, iii, p. 438; McCleur, 'Amer. Journ. of Obst.,' 1873-4, v, vi, p. 618. Holmes Coote, 'Lancet,' 1864, each publish a case of acquired ovarian hernia, with operation. The three former were successful, while Mr. Coote's patient died on the fourth day.

As these cases are not recent a short *résumé* may not be out of place.

Pott, as a matter of course, takes, by common consent, precedence of all other writers on this subject. Whenever one meets with an author on ovarian hernia one is sure to find Pott holding the place of honour as the first operator, at least the first successful operator, for ovarian hernia. His name has been handed down from writer to writer for more than a hundred years as the first operator, without his title to this honour having ever, as far as I know, been called in question.

But a reference to his own book, published in 1775, clearly shows that he was the reporter, not the operator. He says at p. 792: "She was the patient of Mr. Nourse. He had let her blood and purged her, and took all possible pains to return the parts through the openings through which they had clearly passed out. He found all his attempts fruitless, as did Mr. Sainthill and myself, and the woman being incapacitated from getting her bread, and desirous of submitting to anything for relief, it was agreed to remove them."

On consulting the Archives of St. Bartholomew's Hospital it appears that Mr. Edward Nourse and Mr. Percival Pott were colleagues. That Mr. Nourse was appointed surgeon to the hospital in March, 1745, and Mr. Pott in November, 1749, while Mr. Sainthill's name does not appear on the list of surgeons to the hospital. Hence, it is fair to infer that the patient was first seen by Mr. Sainthill in private practice, and sent by him to the hospital, where she became "the patient of Mr. Nourse," and was seen in consultation by Mr. Pott, who published the case in his book in 1775, fourteen years after the death of his colleague, Mr. Nourse, who died in July, 1761.

As it cannot for a moment be supposed that Mr. Nourse would give up this unusual case to his junior colleague for operation, we must accept the alternative, viz. that Mr. Nourse was in reality the operator, while Mr. Pott assisted his colleague and reported the case.

This may not be a matter of much importance now, perhaps; still I submit that honour should be rendered to whom honour is due.

The patient was a servant, aged 23, suffering from acquired double inguino-ovarian hernia, "of some months' standing." Her pains were too severe to admit of her following her employment. As they—the tumours—could not be returned they were successfully removed. No particulars are given as to whether the pains were constant or confined to the menstrual periods. This, perhaps, was not considered a matter of much consequence in those days.

Meadows's was an acquired case of right inguino-ovarian hernia. The patient was a servant, aged 23. She had suffered such horrible pains at the menstrual period for three years that she was, like Pott's case, incapacitated from obtaining her living, and had been compelled to take refuge "in a home for incurables." Mr. Lawson removed the ovary in August, 1861, by an incision four inches long. There was no cyst or sac. The pedicle, which passed through the inner abdominal ring, was ligatured and secured in the wound. An abscess formed, where the pedicle was secured. Recovery was complete in a month. Menstruation became normal after the second period.

McCleur's patient was thirty-eight years of age, married, but never pregnant. She had noticed a lump in her left groin for eight years. During the first six years it gave her neither pain nor annoyance, but suddenly became exceedingly painful during a menstrual period, about two years before she came under Dr. McCleur's care. "The diagnosis was a hernia of the left ovary, through the femoral opening, it coming out from below Poupart's ligament." Operation, August, 1873. "The incision was parallel to Poupart's ligament. . . . . The pedicle, with contained blood-vessels, being ligatured it was separated and the wound closed. . . . . Recovery was perfect, without accident or incident of note beyond the fact that the ligature did not come away until the last of October"—the sixty-ninth day.

Holmes Coote operated on a patient, in St. Bartholomew's Hospital, suffering from strangulated hernia. The sac contained an ovary, which was removed. The patient died on

the fourth day. Post-mortem examination demonstrated the absence of the uterus. A small cul-de-sac, a little more that an inch in length, constituted the vagina. Menstruation is reported to have been regular during life. This statement is not well authenticated.

Oldham, 'Proc. Roy. Soc.,' vol. viii, particularises an interesting case that came under his observation from time to time, where the uterus and vagina were absent, while the other sexual characteristics were those of a well-formed female. There was a swelling in each groin which had not been noticed before puberty. That on the right side frequently appeared and again disappeared, and was of considerable size—as large as a goose-egg, and was often painful. The left was not larger than a walnut, and readily went back into the canal. After a time they enlarged periodically every three or four weeks, gradually for three or four days, remained stationary for about the same length of time, then slowly subsided. He also records a second case where there was neither vagina nor uterus. There was an oval tumour as large as a chestnut in each groin, very movable, but never painful. The personal appearance of the patient was that of a well-formed female.

Barnes, second edition, p. 300, incidentally mentions a case he has seen, but omits particulars. In a private note he tells me the case has not yet been published. Loumaigne saw one case, but did not operate. Gairdner, the American editor of Scanzoni's work, saw a consumptive woman, who was suffering from a right inguino-ovarian hernia. At each period it became as large as an orange, and exceedingly painful. After the period passed off all pain and swelling ceased. Nothing was done. Englisch, of Vienna, saw three cases; he operated unsuccessfully.

The 'Biennial Retrospect of Medicine and Surgery' of the New Sydenham Society for 1871 and 1872 contains a *résumé* of Englisch's observations, published in 1871:—"Of the thirty-eight cases he had collected twenty-seven were inguinal, nine femoral, one sciatic, and one obturator. In one third of the inguinal cases the displacement was double,

In seventeen cases the hernia was congenital. All the congenital cases of the displacement were inguinal, and all the double cases were also inguinal .... The displaced ovary was in fifteen cases normal, in seventeen inflamed, in five cystic, and in one cancerous degenerations had manifested themselves. In fifteen cases of congenital hernia thirteen were irreducible, while in fifteen cases of acquired hernia three only were irreducible. Of the cases in which extirpation of a healthy irreducible ovary was performed *one half died* of subperitoneal inflammation and its results."

Of the latest systematic writers on ovarian diseases, Spencer Wells (1872) and Peaslee (1873) omit to mention ovarian hernia altogether; while Olshausen (1877) epitomises the whole subject into little more than two pages; he never saw a case, and simply gives a general *résumé*, adding little of practical importance or special interest.

He gives a list of twenty-eight authors who have written more or less about ovarian hernia since 1775, assigning to Percival Pott the place of honour. He concludes his brief article thus:—"Perc. Pott was the first who removed the ovaries successfully; afterwards, Deneux, Meadows, and others."

The most recently published case appears in the 'Annales de Gynécologie,' tom. x, p. 328, Paris, November, 1878. As the case more closely resembles mine than any I have met with, a brief summary may be interesting. E. Rees, æt. 22, was admitted into the Clinique de Kiel, October 2nd, 1876. Had never menstruated, but had periodical pains in the loins and thighs every four weeks. In June, 1875, it was discovered that she was the subject of atresia vaginæ, for the relief of which she had been admitted to the Clinique. The external genital organs were well "conformed." With a catheter in the bladder and finger in the rectum, no trace of either vagina or uterus could be discovered, *but, high up, the finger discovered the kidney* (?).

Four weeks after admission violent pains in the lower part of the abdomen called attention to a body in each groin the size of a pigeon's egg, movable and symmetrical. The

patient alleges to have found these swellings at the age of fourteen. It was difficult to determine whether she had sexual feelings, but a certain demeanour seemed affirmative of their existence.

As the tumours in the groins—assumed to be ovaries—were a source of pain and annoyance, and as they could not be reduced, Esmarch removed them, antiseptically, February 2nd, 1877. The right ovary was removed first, and the pedicle secured with a cat-gut ligature; while the left ovary was being removed the ligature slipped from the right pedicle. There was some hæmorrhage, but the pedicle was soon re-secured. A drain tube was inserted into each wound. Union by first intention as far as the lower margin, whence proceeded a moderate secretion.

The abdominal and pelvic pains abated after the operation. She was discharged at the end of the seventh week.

The ovaries manifested ovular development.

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Esmarch's case, like mine, support Englisch's observations in several particulars. They were double, congenital, inguinal, irreducible, and associated with malformation of the genital organs. The spontaneous retrocession of the left ovary when chloroform was in full operation is suggestive, and worth bearing in mind when called upon to deal with an acquired ovarian hernia. It is questionable whether there would be any advantage in returning a congenital ovarian hernia, even if that were possible, which is seldom the case.

Cases of double congenital ovarian hernia have not often been noticed in this country. The only two instances I find on record are those of Oldham. In one case the tumours periodically enlarged, indicating ovarian excitement, while in the other there were no such indications. Neither were there any such indications in mine, which I believe to be the first submitted to operation in this country.

As to the propriety of extirpation in my case there can, I

less numerous. To the mass of fat at the upper part are attached two small pedunculated vesicles containing clear fluid.

A microscopic section of the lobules shows a glandular structure, the tubules being separated by a large amount of stroma, which, in some parts, is rich in nuclei. The diameter of the tubules is for the most part about $\frac{1}{700}$ inch; that is to say, they are scarcely so large as the tubes in the testis of an eight months' fœtus, and are not more than one sixth of the average size of the tubes in an adult testis. They are completely filled with small nuclear cells, the diameter of which is about $\frac{1}{2800}$ inch. The arrangement of the cells within the tubes resembles that seen in a fœtal testicle, but the tubes themselves are separated by a much greater extent of stroma. In one small lobule at the lower part of the larger body the tubes are larger, about $\frac{1}{440}$ inch in diameter, or about the size of the tubes of the testicle of a child two years old. The nuclear cells are here arranged around the walls of the tubes, the lumen of the tubes being filled with granular material.

We are of opinion that the bodies are testicles, the glandular structure of which has never undergone its normal development.

JOHN WILLIAMS,
ALFRED L. GALABIN.

Dr. WILTSHIRE thought the case one of the most instructive and important that had been brought before the Society for some time. It showed that cases of true hernia of the ovary were certainly rare; and that some of the supposed instances of it were, like the case in question, examples of imperfect male creatures. Such imperfect and malformed organs were apt to undergo cancerous change. He referred to one well-marked case of hernia of the ovary which had been under his observation for some time in the person of a married woman who had borne children. Periodical enlargement, pain, and tenderness were commonly seen in true cases. The microscope, in the hands of competent observers, such as the members of the Committee, whose report had been read, had rendered most valuable aid, inasmuch as it had clearly demonstrated the true nature of the organs removed.

Dr. JOHN WILLIAMS thought the case one of the most valuable

published, because of the completeness of the history and of the anatomical examination of the organs removed. He knew of no case except that of Leopold, which had been so fully reported, and that was one of hernia of a horn of the uterus with an ovary, and not a simple hernia of the ovaries. Hernia of the ovary was undoubtedly met with, but it was generally, if not in all cases, acquired; and there was no case recorded of congenital hernia of both ovaries in which the evidence was such as could be trusted. No examination had been made of the tumour in the groin and evidence thus obtained of their true nature. In Dr. Chambers's case, however, this was supplied, and the nature of the tumours put at rest. They were testicles, and not ovaries. It was to be expected that they were testicles, for these organs pass down the inguinal canal normally in order to descend to the scrotum, whereas the ovaries are by no means likely to enter the inguinal ring. Moreover, inguinal hernia was rare in females. In this case there were no symptoms which could be attributed to ovarian function, for there was no molimen. The lumps were at times painful, but this was believed to be due to blows and knocks, and not to any physiological change in them. In considering cases of this kind it should be borne in mind that undescended testicles are subject to swellings and pain, and I believe that such swellings have led observers to regard them as ovaries. It is far more probable that congenital tumours of the groin are testicles than ovaries, and no case should be accepted as ovarian unless the evidence on the point sets it beyond cavil.

Dr. GALABIN said that the microscopic structures of the organs most resembled that of the fœtal testicle, except that the proportion of areolar stroma to tubes was much greater. The cells were arranged as in the fœtal organ, completely filling the tubes instead of being placed in an orderly manner round an open lumen, as is the case in a secretive gland in a state of activity. Many nuclei were seen in the adjacent stroma similar to the nuclear cells in the tubes, and being apparently the same cells on their way to be absorbed through the lymphatics. He thought there was no doubt that the organs had never possessed any excretory ducts. Dr. Chambers had asked him to express his great regret that, owing to the effects of a serious accident, he was unable to be present at the meeting.

Dr. ROUTH said he should be sorry so exhaustive and instructive a paper as the last should not be fully discussed. It now appeared that there were two classes of cases closely resembling one another: cases of hernia of the testicles and hernia of the ovaries, hitherto confounded together. But there appeared in the diagnosis some contradictory circumstances at least opposed to what we should *à priori* expect. 1. In this case, that of a

man, there was a deficiency of hair on the pubis, and males were generally more hirsute than females. 2. There was a total absence of sexual desire. Generally in those cases where a testicle was retained in the inguinal canal such persons were unusually excitable in this respect. 3. The mammæ were unusually large, and occasionally painful and liable to enlargement. He should have liked to know whether it was an enlargement from obesity or from glandular development. This point had not been noted, especially in this case. 4. He should think also sufficient stress had not been laid on the marked increase of size in the case of an enlarged ovary as opposed to a testicle when either were hernial, and as to the *pain* experienced. At the periods this would necessarily be more intensified in the case of an ovary rather than in that of a testicle. Both these peculiarities were certainly and almost always noted in instances of displaced ovary behind the uterus or between it and the rectum, when occasionally synchronously with enlargement the pain was so intense as almost to justify Battey's operation being adopted as a curative measure. Lastly, he could not concur with the author on the inadvisability in such cases of passing the whole hand into the rectum to make an accurate diagnosis. If it was justifiable in any case it was surely in one in which it was essential to determine the sex of an adult. Except when the practitioner's hand was unusually large, it was with a little patience always practicable. A mere digital examination would not suffice in these cases, because, owing to the very fact of the hernia and the ovary being pulled forwards into the sac, the presumption was the uterus would be pulled up also, and less get-at-able. Dr. Routh instanced a case of a lady in whom, with full mammary and vulvar development and strong sexual desire, the vagina terminated in a *cul-de-sac* about three inches long. It could not be determined that there was no uterus until Dr. Rogers, his colleague, and who possessed a smaller hand than he (Dr. Routh) did, was enabled to pass his entire hand into the rectum and thus determine the point. Digital examinations were quite inconclusive.

NOTE ON AN ACOUSTIC SIGN HEARD AFTER THE DEATH OF THE FŒTUS.

By Robert Harvey, M.D.,
ACTING PROFESSOR OF MIDWIFERY, MEDICAL COLLEGE, CALCUTTA.

(Communicated by Dr. Playfair.)

The following case may prove of some interest as illustrating a symptom of death of the fœtus to which the attention of the profession was first directed by Stoltz, but which has been as yet but little studied. It was described by Stoltz as a rustling sound, heard over the whole uterine tumour, and was referred by him to gaseous decomposition of the liquor amnii.

On the evening of the 16th of October I was suddenly summoned to a woman said to be flooding. I found a girl of 18 years of years, seduced, and in great trouble. There was no hæmorrhage, but the membranes had ruptured, and the liquor amnii had soaked several napkins. There was no offensive odour of the discharge. The os admitted the tip of the finger. The head presented in the first position. There was no puffiness of scalp, but the bones at the posterior fontanelle seemed to overlap each other. The patient said she had felt the fœtus a few hours before. On auscultation no fœtal heart sounds could be heard, but everywhere on the upper part of the uterine tumour a distinct rustling sound was audible, somewhat between large and small crepitation. It got indistinct about midway between the umbilicus and the pubis, and was inaudible in front over the lower half of the tumour, though faintly audible in the flanks.

There was no discharge from the vagina, which was well lubricated with non-offensive mucus. I gave an opinion that the child was, in all probability, dead, and mentioned the case to my clinical class next day as proving the occurrence of the sound described by Stoltz, although not proving (then) that the child was dead. The mother was delivered

on the night of October 17th, pains having set in on the evening of the 16th, twenty-four hours after the rupture of the membranes. The child is described by the nurse as having been "quite rotten and stinking."

I think there can be little doubt that the sound was caused by the passage of air bubbles through the liquor amnii. It is to be noted that in this case there was the possibility of the direct entrance of air through the ruptured membranes.

Dr. BRUNTON said he had heard similar sounds when examining the abdomen, but he had put them down to contraction of the muscles under the stethoscope.

Dr. JOHN WILLIAMS could not understand how it could be produced by passage of air-bubbles through the liquor amnii. If the membranes were ruptured opposite the os uteri the liquor amnii would naturally escape, if higher up it would in great part escape probably to below the level of the opening. In any case we should bear in mind that the pregnant uterus is not a rigid body, but one that has a tendency to contract upon its contents, and thus prevent the admission of air.

NOVEMBER 5th, 1879.

WILLIAM S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—56 Fellows and 5 visitors.

Books were presented by Dr. Fancourt Barnes, Dr. W. H. Harris, Miss Agnes McLaren, the Royal Medical and Chirurgical Society, the Edinburgh Obstetrical Society, the New York Obstetrical Society, and St. Thomas's Hospital.

The following gentlemen were admitted Fellows of the Society:—T. Wood Hill, L.R.C.P. Ed.; W. Beech Johnston, M.D.; R. Featherston Phibbs, L.R.C.P. Ed; and Henry Reeve, L.S.A. And Charles L. Evershed, M.R.C.S. (Arundel); William London Reid, M.D. (Glasgow); and Walter H. M. Smith, L.R.C.P. Ed. (Croydon); were declared admitted.

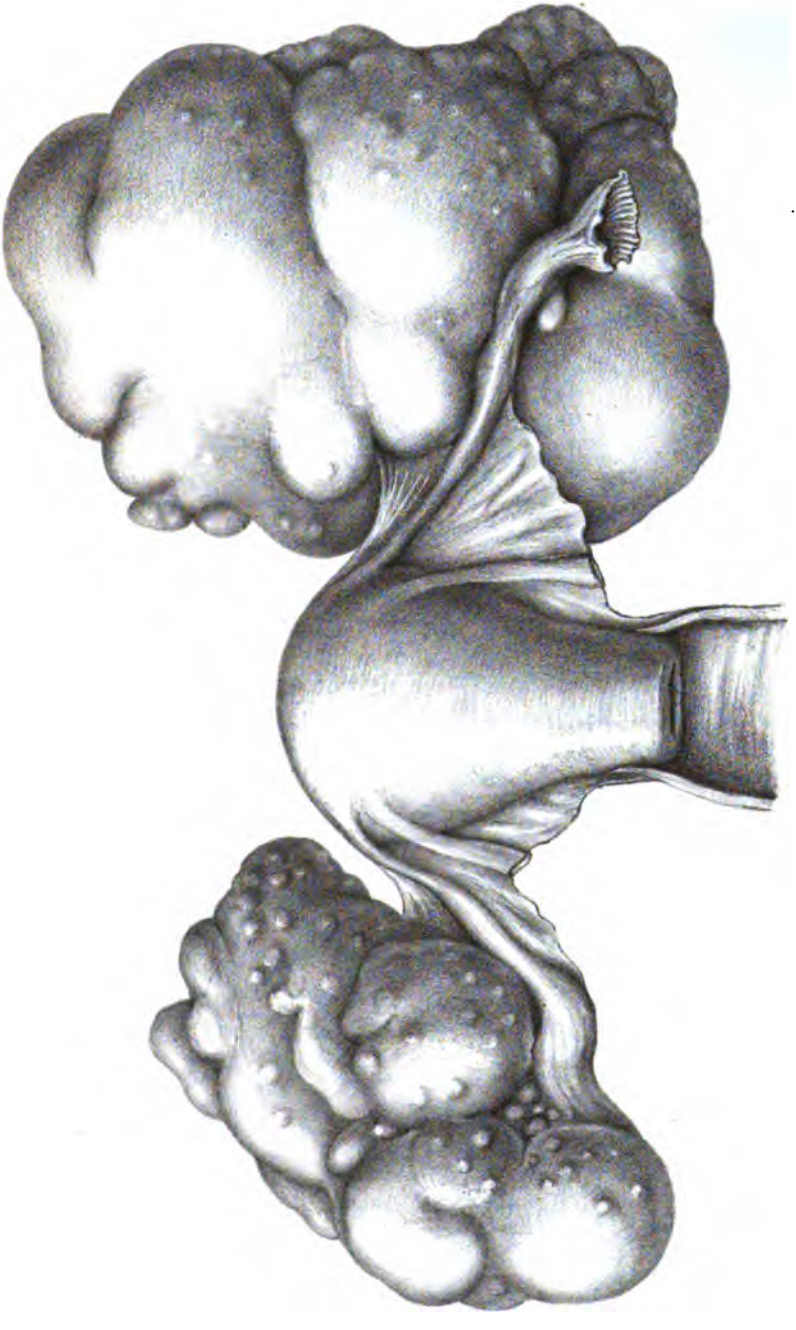
The following gentlemen were proposed for election:—Walter Atkins Grogono, L.R.C.P. Ed. (Stratford); Oscar Dunscombe Honiball, M.D. (Chester); Thomas Geo. Lithgow, L.R.C.P. (Farnboro, Hants); Marmaduke Prickett, M.D.; George Richards, L.R.C.P. Ed. (Ross); David Palmer Ross, M.D. (Kingston, Jamaica); James Beresford Ryley, M.D.; and G. P. M. Woodward, M.D. (Bexley, Kent).

FIBROMA OF BOTH OVARIES.

Mr. Cullingworth (Manchester) exhibited a preparation (with drawings and microscopic sections) of the uterus and ovaries, in which each ovary had become transformed into a fibrous tumour of considerable size. The following was the history of the case. A. K—, a widow, æt. 36, was admitted to St. Mary's Hospital, Manchester, March 11th, 1879. She stated that she had a swelling in the right groin, which she first observed after the birth of her fifth child five years ago, but which she had afterwards lost sight of until Christmas, 1878, when she again noticed it. She was suffering at the time of admission from slight uterine hæmorrhage, which had lasted continuously for about three months, up to which period she had menstruated regularly. The patient had a florid healthy complexion, and had not suffered in her general health.

On examination, two hard, solid, nodulated tumours were discovered in the pelvis. One, resembling in size and shape a man's fist, occupied the right side and extended a little over to the left, lying in front of the uterus and immediately beneath the abdominal wall. It was free, and movable within a limited area. The second tumour, larger than the first, lay behind the uterus, with its smaller end dipping down into Douglas's pouch which it completely filled, and its larger end rising up above the level of the fundus uteri. This tumour could be tilted slightly upwards and downwards between the two examining hands, but owing to its position was much less movable than the one in front. Both tumours communicated a certain slight degree of movement to the uterus, which was normal in size and position, and which was felt to be loosely connected with each tumour by a pedicle having a broad attachment. The tumours were not adherent to the surrounding parts, and there was no fluid, at this time, in the peritoneal cavity.

The uterine hæmorrhage finally ceased about the middle of



A.H. Young del ad nat
Dr Westmacott dirext

West. Newman & Co lith.

June, from which time the patient's health rapidly declined. She lost flesh, and ascites supervened to such an extent that on being admitted as an in-patient at the end of July, the girth of the abdomen at the umbilicus was 39½ in., (100·3 cm.) On the 12th of August, it had increased to 42½ in. (108 cm.). She suffered also from pleurisy, first on the left side where effusion took place, and subsequently over the greater part of the lower lobe of the right side where loud friction sounds were audible to within a short time of her death. On September 10th the patient became suddenly worse, with symptoms of intense dyspnœa and general collapse. She died on the following day.

At the autopsy the left pleural cavity was found full of fluid, and the whole of the left lung entirely collapsed. On the right side, the lower lobe was firmly attached by recently formed adhesions to the diaphragm and chest-wall, and the whole lung was congested and œdematous.

There was a large quantity of fluid in the peritoneal cavity, and the peritoneum was thickened and opaque. The abdominal and pelvic viscera were healthy, with the exception of the ovaries, each of which had become transformed into a solid tumour, connected with the uterus only by the broad ligament. (See Plate.) The tumour of the right ovary lay in front of the uterus and right broad ligament, crossing over to the left of the median line. That of the left ovary was wedged firmly in the pelvis behind the uterus, some force being required to extract it. (See fig. on p. 279.) Neither tumour was adherent. Both were solid throughout, with the exception of a serous cyst, about an inch in diameter, which had formed in the substance of the growth on the right side, close beneath the capsule. The weights and measurements of the tumours were as follow:

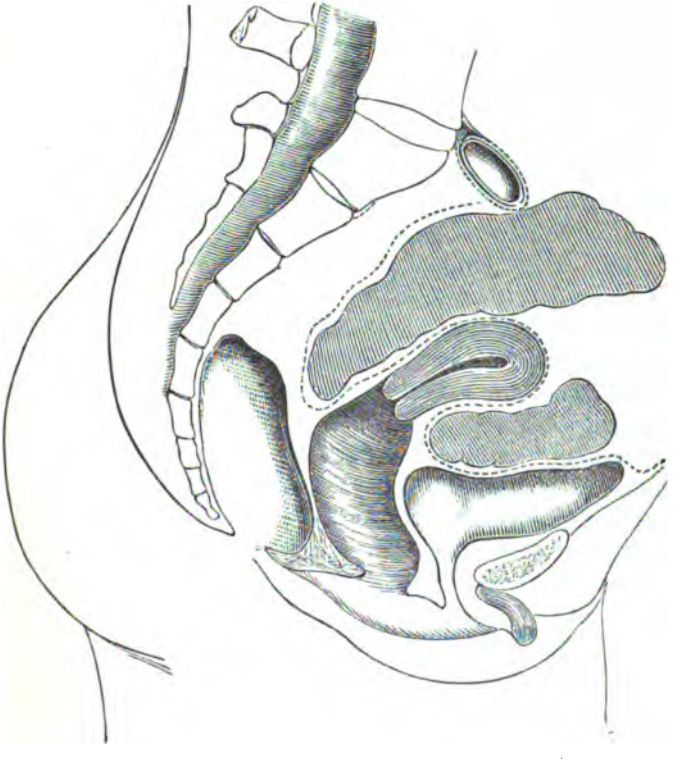
	Weight.	Length.	Breadth.	Thickness.
Right	9 oz. (255 grms.),	5 in. (12·7 cm.),	3¾ in. (9·5 cm.),	2¼ in. (5·7 cm.)
Left	22 oz. (624 grms.),	6 in. (15·2 cm.),	5 in. (12·7 cm.),	3 in. (7·6 cm.)

The tumours were firm and nodulated, whitish-grey in colour, with a smooth, glistening surface. It was evident

that they had replaced the ovaries, no portion of the normal tissue of the ovary remaining. On making a section, which was done easily, there was no creaking of the tissues under the knife. The cut surface was firm, dry, and homogeneous, of a whitish-yellow appearance, and presented numerous small openings, of the size of a pin's head, which were evidently small cysts, whilst the larger cyst, already described as existing at one part of the periphery, was seen to be filled with a glairy fluid. Numerous whitish bands, irregular in their course, passed in from the fibrous capsule and subdivided the tumour into lobes, which in many places had a concentric arrangement. The portions of the tumour enclosed within these trabeculæ were equally firm, presented a finely fibrous appearance, and were of a somewhat yellowish tinge.

The tumours were examined microscopically in the pathological laboratory of Owens College, by Dr. Dreschfeld, who has kindly furnished the following report:—The microscopic structure is best seen in sections cut from a part of the tumour which had been placed at once in Müller's fluid and hardened. This section shows the tumour to consist of fine and coarse fibres, along with cellular elements, blood-vessels, and small microscopic cysts. The cellular elements are arranged in some parts of the tumour in vertical or transverse rows, or in concentric circles. They have all the characters of tissue-corpuscles; they possess an oval nucleus, a long cell-body, and fine outrunners; they are separated from each other by a clear inter-cellular fluid and fine fibrillæ. Rows of these cells enclose spaces which are filled with more closely-packed, round cells, possessing round or oval nuclei, and but little inter-cellular substance. In some places, however, a distinct matrix, with fine fibrillæ, is seen to separate these cell-masses. The blood-vessels are numerous; the larger ones consist of fully-formed arteries and veins, with well-developed muscular walls; the smaller ones are found to be capillaries, in many of which blood-corpuscles and blood colouring-matter are seen. The section also shows the existence of larger spaces, bounded by fine fibres which form

a kind of lining membrane; they are not lined by an endothelium, nor do they contain other than fluid contents; their well-formed fibrous boundary, however, shows them to be cysts and not mere breaks in the tissue. In a section prepared from a portion of the tumour hardened in spirits, the arrangement of the fibrous tissue is seen to better advantage, but the cellular elements and blood-vessels



Vertical section showing position of tumour in relation to the uterus.

appear much shrunk. The tumour is a fibroma. The more closely-packed cells, found in addition to the fibres and tissue-corpuscles, are not epithelial in character or contained

in alveoli, and therefore cannot be regarded as cancerous; while the well-developed walls of the fully-formed blood-vessels in their neighbourhood, and the abundant matrix preclude the idea of sarcoma. The cysts not being bounded by distinct epithelium are probably due to cystic degeneration of the primary tumour masses.

Mr. Cullingworth, in remarking upon the case, said it would probably be regarded as possessing some interest, both from a clinical and pathological point of view. Clinically, it illustrates very forcibly the difficulties that occasionally surround the diagnosis between ovarian tumours and sub-peritoneal fibroids of the uterus, difficulties that are increased by the liability of solid tumours of the ovary to become displaced, and by the fact that menstruation may continue after both ovaries have become incapacitated by disease. There were here two separate and movable solid tumours, loosely connected with the uterus by broad bands. The diagnosis lay, therefore, between solid tumours of the ovaries (which might be either of a malignant or non-malignant character) and pedunculated uterine fibroids. It seemed most unlikely that the tumours were malignant. The growth had not been rapid; there was no implication of neighbouring parts; there were no adhesions, and the general health had not suffered. Against the view that they were non-malignant solid tumours of each ovary was to be set the fact that such cases are so rare as to be wholly exceptional, while pedunculated fibroids of the uterus are by no means uncommon. Further the more or less central position of the tumours, and their relation to the uterus, lying, not on each side, but behind and in front of it, the marked absence of the ovarian physiognomy, and the long-continued metrorrhagia, strengthened the opinion that the tumours had an uterine source. On the other hand, there had to be taken into account the ascites, and the fact that the size of the uterine cavity remained normal; as neither of these conditions, however, is unknown in connection with sub-peritoneal fibroids, no great diagnostic value was attached to them. The nature of the tumours remained uncertain to

the end of life, but it was thought, from the foregoing considerations, that they were most probably uterine.

The case is interesting, too, in its pathological aspect. To show how rare fibroma of the ovary really is, it is only necessary to recall the fact that when Mr. Spencer Wells published his later work, after having performed 500 ovariotomies, he had only met with two undoubted cases. Indeed, he goes so far as to say that until the spring of 1872, when these two cases chanced to come under his notice, he had entertained doubts as to the existence of such tumours, believing, with Dr. Arthur Farre, "that, excepting the cancerous and cancroid cases, most, if not all, of the specimens which have been described or preserved in museums as examples of *large* fibrous tumours of the ovary, have been formed at the expense of the proper tissue of the uterus, and have had nothing to do originally with the ovary, although the latter may be so involved in the mass that its proper tissues can no longer be distinctly traced." *

In December, 1857, Dr. Wilks exhibited to the Pathological Society of London three specimens of "fibrous tumours of the ovaries." It is evident, however, from the full description given in the 'Transactions' (vol. ix, p. 299), that only one of the three was a pure fibroma. Of the other two, one was a fibro-myoma, containing, in addition to simple white fibre, some nucleated fibre and long flattened bands analogous to the so-called muscular fibres of uterine tumours. The other was an example of the tumours described by Dr. Barnes as a mere variety of the ordinary cystic tumour, differing "chiefly in the greater relative proportion of the fibrous walls, and the lesser development of the cysts."

It is important to draw a distinction between tumours of this kind, which, though largely composed of fibrous tissue, are essentially cystic in their original formation, and those purely fibrous tumours which contain one or more secon-

* 'Cyclopædia of Anat. and Physiology,' edited by R. B. Todd, vol. v, Lond., 1859; art. "Uterus and its Appendages," p. 591. Wells, 'Diseases of the Ovaries, 1872, p. 49.

dary cysts in their substance, as in the case of one of the tumours on the table.* Tumours of the former kind are a mere variety of the class cystomata; whereas the presence of cysts in tumours of the latter kind, being due to an accident, as it were, in their growth, does not disqualify them for classification amongst the fibromata.

There are not many cases of ovarian fibroma to be found on record; the disease is indeed so rare, that, as Goodell remarks, "ovariotomists seldom meet with more than one such case in a lifetime." Spencer Wells, it has been already mentioned, saw only two cases amongst 500 ovariotomies, and his table of 300 more recent operations includes no additional instance. In none of Keith's tables is ovarian fibroid mentioned, and the name only occurs once amongst the many cases of ovarian disease reported by Atlee;† unfortunately the tumour, in this, as in so many instances, does not appear to have been submitted to microscopical examination. Peaslee,‡ writing on the subject, casually observes that he has seen two cases, but nothing is said as to the character of the tumours, either as seen by the unaided eye or under the microscope; we learn, however, from Prof. Thomas,§ that at any rate one of the two, removed by him in 1864, was not a true fibroma. Koeberle, in his article "Ovaires," in the 'Nouveau Dictionnaire,' alluding to fibrous tumours of those organs, adduces no illustrations from his own experiences, and indeed appears to recognise only that

* Virchow gives a drawing of a very similar tumour, showing, on section, one large and several smaller cysts ('Die krankhaften Geschwülste,' iii Bd., i Hälfte, Berlin, 1867, p. 227). Dr. Goodell also describes a fibroma of the left ovary, removed by operation, in which there was a small secondary cyst at one end ('Amer. Journ. Obst.,' vol. xi, p. 152).

† Atlee (Washington L.), 'Diagnosis of Ovarian Tumours,' 1873, p. 259.

‡ Peaslee (R.), 'Ovarian Tumours,' 1873, p. 25.

§ Thomas (T. G.), 'Diseases of Women,' 4th edit., Phil., 1874, p. 656. The tumour was of essentially cystic formation. "It consisted of loose fibrous elements, forming numerous loculi about the size of a hickory-nut, which were filled with a honey-like material. After section had allowed what was computed at about three pounds of this material to flow away, the tumour weighed a little more than fourteen pounds."

exceptional form of the affection which commences in a degeneration of the corpus luteum.

Two cases of Spiegelberg's are reported. In one,* a tumour of enormous size, weighing with the uterus sixty-six pounds (30·1 kilogr.), was found occupying the situation of the left ovary; its microscopical and other characters, which are detailed at length, prove it to have been a genuine fibroma. The second case was a tumour of the right ovary in a woman of twenty-six, which was extirpated by Spiegelberg, and afterwards examined and carefully described by Waldeyer, who styles it a diffuse fibroma.† It was 6 inches (15 cm.) long, 4½ inches (11 cm.) broad, 4 inches (10 cm.) thick, and weighed 2 lbs. (910 grammes). It was very firm and hard on section, and resembled certain osteoid tumours, containing, besides a number of lacunar blood-channels, other spaces, like those in the cancellous tissue of bone.

Three specimens of fibrous tumour of the ovary have been shown within the last few years at the Pathological Society of London.‡ In Dr. Goodhart's case the tumour measured 1½ in. (3·8 cm.) in diameter, was purely fibrous in its character, and could be seen to be growing directly from the free or epithelial surface of the organ. On section it was shown to spring from the outer layer of ovarian stroma. The origin of the growth from the fibrous capsule is said to have been equally evident in a preparation exhibited by Mr. Walsham from St. Bartholomew's dissecting-room. The tumour in this instance was of the size of a small orange, and occupied the position of the left ovary, the uterus and right ovary being quite healthy. Under the microscope were seen all the ordinary appearances of a fibroma. The third specimen, which had been removed after death from the body of a single woman, æt. 50, was shown by Dr. Crisp. It was a rounded, nodulated tumour, 8 lbs. (3·6 kilogr.) in weight, attached by a small pedicle to the left ovary and

* 'Monatsschrift für Geburtskunde,' xxviii Band, Berlin, 1866, p. 415.

† 'Archiv für Gynäkologie,' ii Band, p. 440.

‡ 'Trans. Path. Soc. of London,' vol. xxv, for 1874, p. 199; vol. xxvii, for 1876, p. 216; and vol. xxviii, for 1877, p. 195.

composed throughout of dense fibrous structure. During life it was thought to be uterine.

In November, 1871, Lloyd Roberts* exhibited to the Manchester Medical Society a perfectly solid, evenly rounded tumour of the right ovary, removed by abdominal section from an unmarried woman, æt. 24. The tumour occupied a nearly central position in the abdomen, which was tense and fluctuating from ascites. It was very movable, being attached to the ovary by a long pedicle; it weighed 4 lbs. 2 oz. (1·87 kilogr.), and possessed all the microscopic and other characters of a pure fibroma, in which there was a tendency to concentric arrangement of the fibres; there were no cysts and no organic muscle fibres.

Lawson Tait† removed a perfectly solid, round, smooth fibrous tumour of the left ovary from a woman, æt. 44; it weighed nearly 9 lbs. (4 kilogr.), and had a white, glistening, trabeculated structure, without any trace of cystic formation. A number of sections were examined, with the result of showing that the growth was purely fibrous. Virchow‡ describes the naked-eye and microscopical appearances in three cases; one of the tumours he terms a cysto-fibroma, but the cysts appear to have been secondary and not an essential part of the growth; the other two were undoubted fibromata. Leopold§ detected a tumour of the size of a walnut in the right ovary during an autopsy; the microscopic characters showed it to be a genuine fibroma. Sangalli‖ describes a similar tumour, and gives a drawing of the microscopical appearances. Van Buren¶ records two cases, and Klob** one case, in which there had occurred spontaneous twisting

* 'Brit. Med. Journ.,' 1872, vol. i, p. 138.

† Tait, 'Diseases of Women,' Lond., 1877, p. 246.

‡ Virchow, 'Die Krankhaften Geschwülste,' iii Band, 1 Hälfte, Berlin, 1867, pp. 225 and 227.

§ 'Archiv für Gynäkologie,' vi Band, Berlin, 1874, pp. 204 and 234.

‖ Sangalli, 'Storia Clinica ed Anatomica dei Tumori,' vol. ii, Pavia, 1860, p. 220, e tav. seconda, fig. xxiii.

¶ 'New York Journ.,' March, 1850, p. 159, and March, 1851, p. 153).

** Klob, 'Path. Anatomie d. weibl. Sexual-Organe,' Wien, 1864, p. 339.

of the pedicle on its axis, producing more or less strangulation; in one of Van Buren's cases, the strangulation was so complete as to result in necrosis of the tumour and death from peritonitis. Rokitansky* narrates an instance of sloughing of a fibrous tumour of the ovary from the severe crushing it had sustained during parturition, and Kleinwächter† had to perform Cæsarian section on account of the hindrance to parturition, caused by an ovarian fibroid of the size of a child's head, the greater part of which had undergone ossification. Ingham‡ exhibited to the Philadelphia Obstetrical Society a fibroid of the right ovary, slightly larger than a fœtal head at term, and Goodell § showed to the same Society a fibrous tumour of the left ovary, weighing 4 lbs. 4 oz. (1·9 kilogr.), which before operation was thought to be a uterine fibroid; in neither case, however, is there any mention of a microscopical examination.

The cases which have been reported of fibroma affecting both the ovaries are, of course, extremely few. Solid tumours of both ovaries are, for the most part, either sarcomatous or carcinomatous in their character. Out of twenty cases collected and tabulated by Leopold‖ in his elaborate and able paper on solid tumours of the ovary, ten are described as carcinomata, seven as sarcomata, and three as fibroid. On reference to the original authorities, it becomes evident that at least two out of the three cases in this last group ought scarcely to have been classed as fibroids, and that the fibroid character of even the third case rests on but a slender foundation. Thus, the fibrous nature of the tumours in Kiwisch's case receives its only support from a casual expression of opinion by Scanzoni (who happened also to have seen it), and was never confirmed by a microscopical examination.¶ In Spengler's case** an enormous

* Rokitansky, 'Lehrbuch d. path. Anatomie,' 3tte Aufl.. iii Band, p. 423.

† 'Archiv für Gynäkologie,' iv Band, p. 171.

‡ 'American Journ. Obstetrics,' vol. vi, p. 106.

§ Ibid., vol. xi, p. 152.

‖ Loc. cit., p. 198.

¶ Klob, loc. cit., p. 344.

** Spengler, "Zwei merkwürdige Sectionsbefunde in den weiblichen Ges-

solid growth, weighing 43 lbs., was found to consist of no fewer than forty different tumours springing from a common trunk, which was united by several pedicles to a tumour, of the size of a duck's egg, in the anterior wall of the uterus. No trace of the ovaries could be found; they were, to use Spengler's own phrase, swallowed up by the parasite. No microscopical examination of the growth was made, but there can be but little doubt of the correctness of Spengler's view, that it took its origin from the tumour in the substance of the uterus. The third case is that of Foerster*; his description is extremely meagre, and does not include any mention of the microscopical appearances.

Some preparations of fibrous tumour of both ovaries are mentioned by T. Safford Lee,† Bright,‡ and Dr. Barnes ('Diseases of Women,' 2nd. ed., p. 319), as existing in the Museums of King's College, the London Hospital, and Guy's, but it is scarcely necessary to say that the evidence afforded by old pathological specimens, especially those to which no histological description is attached, must be received with considerable reserve.§

chlechtstheilen," Casper's 'Wochenschrift für die gesammte Heilkunde,' No. 34, Jahrgang 1851, p. 529.

* Foerster, 'Handbuch der pathologischen Anatomie,' 2te Aufl., ii Band, Leipzig, 1863, p. 386.

† Lee, T. Safford, 'Tumours of the Uterus and its Appendages' (Jacksonian Prize Dissertation), Lond., 1847. "There are some large specimens of these [fibrous] tumours in the King's College Museum; in preparation No. 4 both ovaries are enlarged to the size of cocoa-nuts, with several small tumours projecting from the surface. The structure seems to be that of a tumour resembling those of the uterus, with numerous bands intersecting each other, and the interspaces filled up with cartilaginous deposit; no Graafian cells are enlarged, but they all appear to be obliterated, and the tissue of the ovary has disappeared. The surface is intersected with numerous veins forming a network." (P. 225.)

‡ Bright, 'On Abdominal Tumours,' New Syd. Soc. Lond., 1860, p. 146 (with woodcut).

§ This remark cannot be better illustrated than in the following quotation from Dr. Arthur Farre's classic article in Todd's 'Cyclopædia,' in reference to a preparation preserved in King's College Museum, as an example of fibrous tumour of both ovaries, probably the very specimen described by Lee in the

Mr. LAWSON TAIT observed that the ascitic and pleural effusions seemed to him to be of very great importance in both the clinical and pathological aspects of this case. He had seen a large number of cases of ovarian tumours complicated with cancer, and in several the rapid effusion of pleural fluid had been the cause of death. From this fact he was not disposed to accept Mr. Cullingworth's specimen as necessarily one of a non-malignant character, the more that he (Mr. Tait) had described a case of solid fibroid cancer of both ovaries, in which the histological characters coincided very closely with those given of Mr. Cullingworth's tumour.

Dr. WILTSHIRE thought that the pleural effusion was strongly suggestive of malignancy, unless there was some other obvious cause for it, *e. g.* acute pleurisy.

Dr. CARTER said that in the year 1877 he removed from a patient a large solid tumour of the ovary; it measured thirty-two inches in its greatest and twenty-five inches in its least circumference: it weighed 15½ lbs. The tumour was firm, tough, elastic, quite solid, and had a well-defined and easily separable capsule. It was attached to the right side of the uterus by a wide expansion of the broad ligament; examined under the microscope, it presented the ordinary structure of a fibroid tumour.

Mr. ALBAN DORAN had recently examined a large tumour, which was undoubtedly fibroma of the ovary. It had been successfully removed by Mr. Spencer Wells from a lady during the past summer. In the course of operation the uterus was found to be quite distinct from the growth, and the ligament of the ovary ran between them. The specimen is now in the Museum of the Royal College of Surgeons, and is so mounted that the Fallopian tube and broad ligament may be seen to bear the same relation to the tumour that they would normally bear to the ovary. The deeper part of the growth consisted of pure white fibrous tissue; towards the surface plain muscular fibres were found, derived probably from the broad ligament.

Mr. CULLINGWORTH, in reply to inquiries, said that menstruation had taken place as usual up to Christmas, 1878; that from that time to the middle of June there was continuous uterine hæmorrhage, slight in degree; and that from the middle of June

passage cited:—"It was rendered evident," says Dr. Farre, "by dissecting the parts and opening the uterus, which had not been done previously, that these large tumours, which hung on either side of the uterine body, had been formed at the expense of the latter, for the natural tissues of the fundus and corpus uteri were in great part absorbed into and had evidently contributed to form these masses; and out of the apex of one of these sprang the uterine end of the Fallopian tube, a clear proof that this was not an ovary." (Vol. v, p. 591.)

up to the early part of September, when death took place, there was no hæmorrhage, normal or abnormal. Dr. Rogers had inquired if there were pain; there was aching at the bottom of the back, but of actual pain in the tumours themselves there was none. With regard to what had been said as to the possible cancerous origin of the effusion into the pleural and peritoneal cavities, Mr. Cullingworth said that possibility had been present to his mind when superintending the autopsy, but that very careful and minute inspection failed to discover more than a thickened and opaque condition of the pleura and peritoneum.

The specimen was referred for report to a sub-committee, consisting of Mr. Alban Doran and Mr. Knowsley Thornton.

ORIGIN OF OVARIAN CYSTOMA FROM GRAAFIAN FOLLICLES, AND PRESENCE OF LIMPID FLUID IN TRUE OVARIAN CYSTS.

Dr. Galabin showed microscopic sections from a portion of an ovarian tumour removed from a woman aged 49. She was in Guy's Hospital in 1878, under the care of Dr. Hicks, and the tumour was an apparently unilocular cyst. On tapping, clear limpid fluid like water, having a specific gravity of only 1005, and containing only a minute trace of albumen, was removed. It was therefore concluded that the cyst might probably be parovarian, and not truly ovarian. After a few months the cyst again filled. Ovariotomy was performed by one of his surgical colleagues, and unfortunately the patient died from hæmorrhage.

On examining the tumour, besides the main cyst, two other cysts of considerable size were found, all three containing limpid fluid, having the same characters as that removed by tapping. The tumour had the same relations to the Fallopian tube and broad ligament as an ordinary ovarian tumour, and its wall was not separable into two layers, nor could the ovary be discovered distinct from the tumour. In

one portion of the cyst wall was seen a small portion of tissue about one and a quarter inch long, resembling ovarian tissue full of small cysts. This was hardened, and the microscopic sections shown were taken from it.

The sections showed numerous cystic cavities, of all sizes, up to about one fifth of an inch in diameter. The smallest resembled, in the character of their epithelium, and in other respects, Graafian follicles at a very early stage of development, and a few of them were shown to be really of this nature by their containing ova. Those somewhat larger differed from Graafian follicles, as normally developed, by the fact that they contained no ova, and that the epithelium remained as a single layer, and had become cylindrical in character. In still somewhat larger cysts the epithelium was more flattened. The indefinite gradation from one form to another appeared to show that all the cysts were degenerated and dilated Graafian follicles. Most of them did not contain limpid fluid, like the main cysts, but a colloid material, of which sections could be cut after hardening. In many places a proliferation of gland-like tubes, lined with cylindrical epithelium, from the dilated follicles was seen. Every stage could be observed, from the commencement of a single pouch-like diverticulum from the otherwise spherical cyst. This was doubtless the commencement of what would have become a proliferous cystoma.

The case, therefore, showed two practical points—first, that a clear limpid fluid like water, of very low specific gravity, and containing only a trace of albumen, may be found in true ovarian cysts, as well as in parovarian; secondly, that such a fluid in the main cyst may be associated with a proliferous cystoma in the same ovary. This circumstance would be a point in favour of extirpating such a cyst instead of only tapping it.

The specimen appeared rather to tell against the view of Waldeyer, recently supported by De Sinety and Malassez, that ordinary ovarian cystomata do not originate from Graafian follicles, but either from the original tubes of Pfluger, or from newly-formed epithelial tubes ("mucoid

epithelioma") growing inward from the surface. The existence, indeed, of any such tubes in the normal development was denied by Dr. Foulis. The gland-like tubes seen in this instance corresponded exactly in appearance with the "epithelial tubes" of De Sinety and Malassez, but they obviously commenced from pre-existing cysts, and not from the surface of the ovary.

Dr. PLAYFAIR exhibited a specimen consisting of several large pieces of uterine decidua, illustrating the extent to which the ovum may occasionally be interfered with without abortion occurring. The patient was the wife of a sergeant in the Coldstream Guards, who had been sent to Dr. Playfair by the surgeon of the regiment. She had been married for eleven years without family. She had missed two periods, and had since suffered from intense attacks of paroxysmal pain in her pelvis; per vag. the cervix seemed to be pushed up behind the pubes, the os pointing downwards and backwards; behind and towards the left side was a rounded and somewhat nodular swelling, but apparently continuous with the uterus; the mammæ were enlarged, and the areolæ darkened. These conditions aroused a strong suspicion of extra-uterine fœtation in an early stage—an opinion shared by Dr. Braxton Hicks, who saw the case. It was decided, in that case, to open the sac with a galvano-caustic knife, as had been done under similar circumstances by Dr. Thomas, of New York.

Before deciding, however, it was determined to clear up the diagnosis by passing the sound. This was carefully done, and the instrument passed backwards for several inches. It was now apparent that the pelvic tumour was a retroflexed fundus, and that the case was one of retroflexion of the gravid uterus, the cervix retaining its normal direction—an example of which had been recorded by Dr. Old-

ham. The patient was put to bed, and abortion was naturally expected. Next day four or five large shreds of decidua, each as big as a half-crown piece, were thrown off, but the pregnancy continued, and the patient is now in the seventh month, the child being vigorous and strong. The case was interesting from the great obscurity of the diagnosis, which the use of the sound only could have cleared up, since both the general symptoms and the physical condition closely resembled extra-uterine fœtation. Many instances are known in which the sound has been inadvertently passed into a gravid uterus without causing abortion, but that the greater portion of the decidua should be cast off and pregnancy still continue was, so far as Dr. Playfair knew, quite unique in obstetric history.

Mr. Lawson Tait showed his apparatus for dilating the uterine canal by continuous elastic pressure. It consists of a waist belt with a strap depending from it back and front, on which a series of hooks are sewn in a line close together, to allow of an easy gradation of the pressure employed. The dilators are a series of conical vulcanite plugs which screw on to a common stem, which is usually quite straight, though in exceptional cases it requires to be bent. In the handle of this stem there are three holes through which a single elastic thread is passed. The point of the dilator is passed into the cervix and the elastic thread is then fastened to the hooks, so that by very gentle pressure the plug is forced into the cervix. Two rules require to be observed, always to begin with No. 1 dilator, and that sufficient force to give pain should not be used, unless there is imperative necessity for rapid dilatation, in which case opium must be given. The uterus may be completely dilated in four or five hours, but it is better that twenty-four hours should be given to the process.

The dilators have the advantage over sponge tents that they cause no offensive smell. Mr. Tait had used them for exploration, for the cure of dysmenorrhœa, for the induction of premature labour, and for the treatment of stricture of the rectum.

Dr. EDIS inquired whether the changing of the dilators every few hours was entrusted to the nurse or required the attention of the medical man himself. In private cases where the patient lived at any distance from the operator, the fact of his having to alter and re-adjust the dilator every few hours would appear to be a drawback as regards employing this method of dilatation.

ON NEW METHODS OF OPERATION FOR REPAIR OF THE FEMALE PERINÆUM.

By LAWSON TAIT, F.R.C.S., &c.

THE admirable papers of Dr. Matthews Duncan leave nothing to be said upon the conditions of the perinæum when it is in need of repair or upon the causes which produce them. A very large experience of operations on the perinæum has, however, led me to desert the methods of operation hitherto adopted, and which are recommended by Dr. Duncan, and I now wish to describe methods which have proved to me to be superior to the old, and which are so essentially different from anything I have seen described, as fairly to merit the name of *new*.

Referring to the last chapter of Dr. Duncan's "Papers on the Perinæum," it will be noticed that this distinguished author regards, as far as the operation is concerned, stretching of the perinæum as almost the same as laceration, for he says that "it will be unnecessary to go over the steps of the operation for procidentia, because, *mutatis mutandis*, they

are quite the same as in a case of laceration." With this I do not agree, for it will be seen that in my operations for repair I regard these two conditions as wholly different, and advise different details of procedure, even though the principles of the operations have a large amount of identity.

Speaking of the cases solely as they are when they come to us for repair, I divide them into two classes, those (I) where the laceration is complete, and (II) those where it is incomplete.

In the first class I rank all those where the damage has resulted in an inability to retain the fæces; and in the second I include all those where the fæces can be retained, even if the power of retention be slight, so that the patient may have to hurry to the closet immediately the inclination to defecate is felt. Like nearly all such divisions, this is of course open to some evident objections, but its convenience seems to me to more than counterbalance them; and the old method of dividing the cases into those in which the sphincter has been ruptured, and those in which it has not, is altogether faulty. Thus, I have operated upon three cases lately, in none of which the sphincter had been at all damaged, and yet there was constant fæcal dribbling. Again, I have seen many cases in which complete rupture of the sphincter had occurred, and yet where the dribbling took place only when the patient was affected by diarrhœa. Finally, some authors have described two methods of operation based upon this division of the cases, and have therefore confused two altogether different operations, of both of which it is my intention to describe modifications—colporaphy and perinæoraphy.

A third class of cases—those where it is necessary to extend the perinæum, which has only been stretched by protruding viscera, or which has been torn only to that slight and inevitable extent which Dr. Duncan points out as associated with first labours, are to be included, as far as the method of operation is concerned, with those in which there is incomplete laceration.

Another fact upon which I might claim consideration for this method of division is that cases of the first class are

those in which a surgical operation is the only remedy; whilst in those of the second the patient may, as a rule, be by various kinds of support made quite comfortable, at least for a time, during which there may exist strong reasons against surgical interference.

The principles upon which my new method of operating is based are chiefly two. The first is that no tissue is removed, flaps being lifted only, so that if the operation fails they go back to their original position, and the patient is left just as she was, without detriment to the success of a repeated effort, as is the case if edges are pared. The second principle applies to the method of application of the stitches. Hitherto these have been recommended to be applied through the thickness of the flap, and in interrupted fashion, like skin sutures. In my method they are applied in the axis of the wound, and so as to be practically continuous.

The extent to which the damage may be carried in a case of complete laceration varies very much, but in the worst case I have seen, and that upon which my illustration is based, the rent went completely through all the structures for a distance of nearly three inches upwards from the anus and posterior commissure of the vulva. As the form of the perinæum and passages varies indefinitely in different women, some of the details of my description may not be found universally applicable. But I think the principles I desire to lay down may be adapted to all cases—at least I have not found a case yet where they have failed me.

In all cases where some of the perinæal structures have been left untorn, yet where there has been complete laceration, according to my definition, I deal with the untorn remnants as if they had been divided; that is to say, I divide them and then reunite them; for I find it infinitely easier to deal with a torn perinæum than with a recto-vaginal fistula.

The description of the operation for completely torn perinæum in the most recent text-book is, briefly, that a portion of the skin and mucous membrane should be dissected off each side, so that the portion should be continuous at the apex of the rent, the sides of the dissection corre-

sponding in extent, and the incision and dissection being made by the scalpel. As a rule I do not use the scalpel at all, but do the work by means of sharp-pointed scissors. I run the point of the lower blade through the skin and mucous membrane (along the line c c c c) to such a depth only as will enable me to turn a flap backwards from each edge of the rent into the rectum. (All direction is considered as being to or from the central axis of the vagina.)

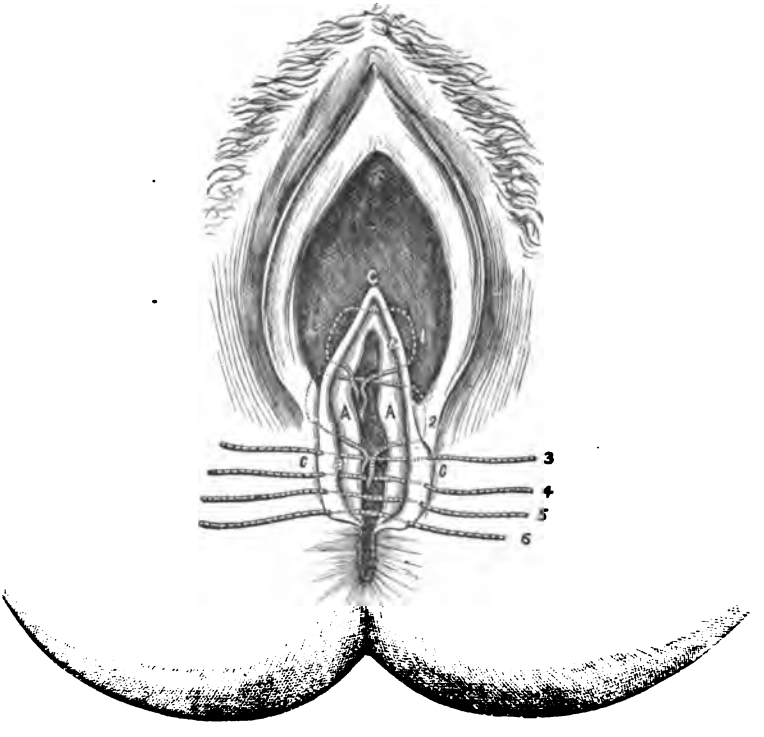
In making this incision it is important not to cut at right angles to the vaginal surface, but at a somewhat acute angle to it, so as to level the flaps outwards. The depth of the incision must also be so regulated as not to risk the life of the flap.

By thus removing no tissue I secure that my patient is made no worse for any future operation should my first fail —an event which has not yet happened; and this principle of shifting flaps I have found of immense advantage in repeated fistula operations, where the paring of the edges would have been fatal to any after attempts if the early ones failed.

When the raw surfaces are adjusted and fastened together, it will be seen that these reverted flaps form a valve, uninterrupted by stitches, which closes from the rectum, and therefore must greatly aid the healing of the wound by preventing the admission of fæces. To this peculiarity I attribute, very largely, the uniform success which I have had with this operation in a number of cases which is now pretty large.

For the introduction of the sutures I use no special needle. The ordinary handled needle, if it makes not too large a hole, or a common curved needle in a needle-holder, threaded with some of Pearsall's pure silk, is all that is wanted. After very large experience, I prefer this material for the stitches to wire or silkworm gut, and chiefly for the reason that it gives the patient no pain; and it causes no more irritation than either of the others mentioned. I have entirely given up quilling, or any other special means of fastening the threads, as troublesome and wholly unnecessary. The common knot with two reefs in the first hitch is quite sufficient.

The method of introducing the stitches is very simple when seen, but is somewhat difficult to explain. A reference to the woodcut will probably make it clear.



A, A. Reverted flaps.
B, B. Line at which reflection of flap takes place.
C, C, C. Line of incision from which flaps are reverted.
1, 2. Circular septal stitches.
3, 4, 5, 6. Deep perinæal stitches.

The upper stitch (1) is first introduced. The needle may be passed from either side into the septum, about an inch from the apex of the rent, *and its entrance and exit should always be just at the line of reflexion of the flap* (B, B.). It is passed in the thickness of the septum, and brought out

within a quarter of an inch of the apex of the rent, entered again and passed similarly in the thickness of the septum, and out again opposite its original entry. If properly passed, it should not, when tightened, be seen or felt either in the vagina or rectum, but should pass between the two mucous surfaces through its whole extent. The stitches are not to be tightened, however, until they have all been placed.

If necessary, on account of the extent of the rent, a second stitch (2), similar to the first, should be placed lower down; but, as a rule, one and the perinæal stitches will be found enough; indeed, in very many cases, the perinæal stitches will do all that is required, and septal stitches are needed for bad cases only. The perinæal stitches should never be less than three in number, and should generally be four. The middle one, or the third if there are four (No. 5), should be introduced just within the line of incision, as indicated in the drawing, on a plane with the septum, and its stitches if there be any. If there be no septal stitch, then this middle perinæal stitch (5) should be made to miss a small part of the apex of the wound, about a quarter of an inch, as in this way more accurate adaptation of the wound is secured. The most posterior stitch is placed just in front of the reflected flaps, and the front ones are placed where they may seem to be most serviceable, all being introduced *within the line of incision* (c, c, c.).

All bleeding having been stopped, and the wound thoroughly cleansed, the septal stitches are to be first secured, care being taken that the flaps are turned well into the rectum, and not caught in the tightened stitch; this being really the most important part of the operation. The middle perinæal stitch is next to be secured, and then the posterior; the same precautions with the flaps being taken. The anterior stitches are then to be secured, and the ends of all cut off, leaving about half an inch of thread.

The repaired perinæum should then present the appearance of an entire structure with a line of incision just skin deep down the raphe, from within which the ends of the perinæal stitches emerge. If the two edges of this incision

do not lie quite close together, two or three superficial stitches had better be placed to bring them close.

Before the operation the bowels of the patient should have been thoroughly opened, and washed out with an enema. Both vagina and rectum must be washed out very carefully with carbolic water night and morning, and twenty-four hours must never be allowed to pass without the bowels being moved. To close the bowels for eight days with opium, as recommended by Dr. Duncan and others, is, in my opinion, the most likely way to make the operation a failure.

I always direct the daily use of small enemata of oil, to

make perfectly sure that hardened fæces shall not tear open the wound.

Finally, the stitches should not be touched for a fortnight, twelve days at least.

For the repair of the perinæum in such cases where the laceration has not been complete, or where the damage has been due chiefly to stretching, another operation, somewhat similar in principle, is what I recommend. An incision is made by scissors in a horse-shoe direction round the posterior commissure of the vulvar orifice, and as far forwards on either side as circumstances may demand. A broad mucous flap is then to be raised, and turned upwards and inwards, the raw edges below it being united by stitches in the way already described. The advantage of leaving the flaps instead of removing them is that by their union they strengthen the bridge of tissue which has to bear the procident mass, or if the operation should fail, they fall back in their places, and merely require re-lifting for another attempt.

Dr. EDIS had had no opportunity of testing the advantages of this operation, but there was one point of practical clinical interest he was glad to see Mr. Tait insisted on, and that was the advisability of obtaining regular relief from the bowels, even from the very first day after the operation. Dr. Edis had pursued this plan for many years, and with marked advantage. He thought that the success of many a careful operation was jeopardised if not entirely defeated by the habit still inculcated by many of allowing the bowel to become distended with hardened fæces for a week or ten days following the operation, the action of the bowels being then often entrusted to some inexperienced nurse.

Dr. RASCH asked if and with what results Mr. Tait had practised his operation in cases of prolapse and rectocele, especially in those cases where very little external rupture of the perinæum existed. Dr. Rasch had long given up Baker Brown's operation, as it gave no permanent good results. Professor Simon's operation which he then took up was much better, but it was from Hegar's modification of it that he had seen the best results, and he considered it still the best operation for all cases of ruptured perinæum as well as prolapse. If carefully done, particularly in applying the sutures, it was almost sure to succeed.

The large triangle, which is dissected off from the posterior vaginal wall with the apex nearly as high up as the cervix gave, when well united, a very efficient support.

Mr. CULLINGWORTH said that the merit of the proposed operation consisted in its conservatism; it utilised the flaps instead of removing them from the body. The members would, no doubt, remember that Mr. T. Pridgin Teale, of Leeds, published a paper not long ago, in which it was suggested to save the flaps and use them for strengthening and increasing the thickness of the new perinæum. Mr. Tait made a different use of them. It remained to be seen which method was followed by the best results. In any case there could be no doubt of the correctness of the surgical principle on which these operations are founded—the principle of avoiding waste of healthy tissue.

Dr. MATTHEWS DUNCAN had not been able to follow all the details of Mr. Tait's operation, but he was sure that at least the saving of the tissues was a principle that would be fruitful of good results. He would remark, in connection with Mr. Tait's excellent clinical classification of cases according to the retentive power of the sphincter, that an operation apparently quite successful proved only a half success on account of the imperfect recovery of sphincteric power in the restored anus; and he thought attention should be directed to attempts such as Dr. Wiltshire had made, to unite the divided muscular ends with a view to completeness of success of the operation for perinæal and recto-vaginal laceration. He, Dr. Duncan, thought it convenient to keep the bowels closed for eight days after operation, and he, in a considerable experience, had no reason to doubt the innocence of the plan. He had at present a case, not of laceration, but of procidentia in a virgin, where the procident uterus was not beyond the vulva, but lay almost entirely in the expanded fossa navicularis. In this case he could not get the uterus retained, even so long as to allow of episeoraphy being done with a prospect of success.

Dr. ROGERS said he regretted not having grasped or understood all the suggestions in the paper, and did not clearly follow the demonstration of the author. Further study of the paper itself will no doubt clear up uncertainty, and enable him to understand Mr. Lawson Tait's manner of operating in those cases where the sphincter ani and bowel have been torn through. For the past twenty years or more Dr. Rogers has followed the plan Mr. Baker Brown adopted, and never had cause to regret it; although he has discarded for the past few years the quill suture, his colleague, Dr. Routh, still most successfully uses it, or what is equivalent to it. Dr. Rogers has never had the mortifying result of an opening behind the united perinæum into which he could pass his finger. He had formerly always brought the torn

rectum together by fine silver wires. The last three cases were exceptions to this plan; in two he had used carbolised silk-worm gut, in the third carbolised catgut; these three cases had turned out successfully. In one of them a fistula had occurred into which a small probe could be passed, and which allowed flatus at times to escape; but this was healed by once using the actual cautery. In a like case he had used successfully nitric acid. Dr. Rogers had always kept his patient's bowels closed, feeding them on beef tea, milk, &c. At the end of from ten to fourteen days enemata were used, which his nurses managed very well, so that nothing but soft matters passed, and no bad results followed. The last three cases he was induced to try the plan of getting the bowels moved daily; no harm followed, and the cases were successfully cured as stated.

Dr. WILTSHIRE said that he wished to call attention to a point he regarded as of the utmost importance in all operations for ruptured perinæum when the laceration extended through the sphincter ani, and that was that some attempt should be specially made to restore the integrity of the sphincter by joining again the sundered ends of it. In considering the matter some years ago he had arrived at the conclusion that it was desirable, in all such cases, to vivify the torn and retracted ends of the sphincter, and then unite them by pure silk sutures, in addition to whatever other operations were done upon the perinæum. When the external sphincter was torn through the ends retracted, leaving the muscle crescent-shaped, like a torn india-rubber ring, and this could readily be made out by feeling the parts with the finger and thumb. He had carried out this plan of operation in cases both in public and private practice with the most gratifying success; and he would beg gentlemen meeting with cases to give it a trial. Unless such special means of restoring the integrity of the sphincter were adopted the patients were liable to suffer from more or less incontinence of fæces, which caused them great distress. The power of the sphincter was soon regained, but a little time should be allowed for the recovery of nervous power, which was gradually resumed.

Dr. RASCH.—The method included rectal sutures, and these belonged already to Professor Simon's operation, practised by him more than fifteen years ago. Dr. Rasch had also done them many years ago when the cases required them.

Dr. HEYWOOD SMITH asked, with reference to the case just mentioned by Dr. Matthews Duncan, whether the following operation had either been suggested or performed in such cases, viz. to open the abdomen, pick up the uterus, and secure it to the abdominal walls by a suture passed through the oviduct or broad ligament.

At the invitation of the PRESIDENT Mr. Lawson Tait showed

the steps of his operation by means of a diagram. He confessed he was at a disadvantage in endeavouring to explain the steps of the operation, because all plastic operations were extremely difficult to describe. He seemed either to have lacked precision in describing his proceeding or some of the Fellows could not have been closely following the reading of the paper by the Secretary. He had thought he had been sufficiently distinct in stating that he was describing two wholly different operations, but he found that the details of the two were mixed up by nearly all the speakers. He had no doubt that, when the paper was in print, every reader would be able to follow the steps of the operation, aided by the illustrations which would be given.

Mr. TAIT expressed his surprise at the marks of ridicule with which the suggestion of Dr. Heywood Smith for the case related by Dr. Matthews Duncan was received by some Fellows of the Society, for the suggested operation was one he had actually carried out with perfect success in a case somewhat like Dr. Duncan's (fully related in the 'Lancet' for October 23, 1875), and it certainly was the proceeding he should adopt in Dr. Duncan's case were she under his care.

In reply to Dr. Rogers he must say that the staff of the Samaritan Hospital must be exceptionally lucky if they cured all their perinæal cases after stuffing up their recta for ten days or a fortnight by opium. Neither Mr. Tait's own experience nor that of many with whose practice he was acquainted had been so fortunate, and he unhesitatingly condemned the practice of confining the bowels in these operations.

ON EXPRESSION OF THE CORD.

By J. MATTHEWS DUNCAN, M.D.

THE well-known complication of labour called prolapse of the cord is an accident of much interest from various points of view. It is very dangerous to the fœtus. It is not rare, and there is a striking difference in this respect in different hospitals, and probably in different countries; the variations being so great as to induce belief that there is some mechanical condition of labour at fault, with preponderating frequency in those countries where prolapse is most observed.

This subject would not have called for mention in this place were it not the case that the theories of prolapse which now prevail are insufficient to explain it, and that the addition of expression to the causes of prolapse supplies the want. This prolapse by expression is especially liable to occur in obstructed labour, and especially in labour obstructed by the more common deformities of the brim, as in the flat pelvis; and there are grounds for believing that frequent occurrence of contracted pelvis accompanies frequent occurrence of prolapse of the cord.

The condition of prolapse is sometimes the result of previousness—chorda prævia; and this last word implies a certain analogy with placenta prævia, the cord being in advance of the fœtus before the process of labour commences. It is, of course, prolapsed when the bag is ruptured. This condition of previousness is observed also as a cause of prolapse of a limb or of limbs; but a living child may withdraw its previous limb and thus prevent prolapse, a change which cannot be produced in the case of placenta prævia, and which does not happen from any cause in a case of chorda prævia; unless, while the genu-pectoral position is used, and when liquor amnii is copious, and in some other rare states of the cervix which do not demand description in this place.

The condition of prolapse is generally regarded as the result of prolapse proper, the cord slipping or falling out of the womb during labour, so as to get in advance of the fœtus, the accident occurring chiefly at the time of rupture of the bag of membranes; and then the flow of liquor amnii contributes to its morbid progress. This mode of prolapse is favoured by superabundant length of cord, by its low insertion, by copiousness of liquor amnii, by malpresentation of the fœtus. The same occurrence has been described as the explanation of some cases of placenta prævia, and examples of prolapse of the placenta have been recorded; but they require renewed study. Prolapse of a limb or of limbs also takes place in this manner.

There is a third mode of production of prolapse, namely,

by expression. This is the cause of prolapse, I believe, in the rare cases of previousness of a detached and then prolapsed placenta; and it has certainly been so in most of the cases of prolapse of limbs which I have seen, whether the prolapse is by the side of an advancing head, or of a leg or legs in a breech case.

This prolapse of the cord by expression I observed in the first example of this accident which I met with, long ago, in the West port of Edinburgh, in the practice of a pupil. The labour was tedious, and it was not till long after the discharge of the liquor amnii, when the head had descended to the outlet of the ligamentous pelvis, that a loop of the cord made its appearance. It was evidently squeezed out with considerable force. The labour advanced with sufficient rapidity to permit the survival of the child after its birth.

The last case of prolapse of the cord which has come under my care was also the result of expression, not of prolapse proper. There was contraction of the brim antero-posteriorly, or flattening of the pelvis, the conjugate being the smallest antero-posterior diameter. The cord did not prolapse when the waters were discharged, but many hours, probably about a day afterwards, while the cervix was incompletely dilated, and while the head lay on the brim, not pressed even partially into it.

The recently revived and beautifully simple proposal to treat prolapsus of the umbilical cord by aid of the genu-pectoral position, was propounded with manifest adaptation to a theory of the production of prolapse, which included only the two categories of previousness and prolapse proper. Prolapse as a result of expression was unknown, and therefore unconsidered. In order to appreciate justly the limits of the utility of the treatment by the genu-pectoral position, however, more has to be done than to recognise prolapse by expression. Especially desiderated is the causation of the usual position of the cord during pregnancy, and the reason why it is not very frequently, if not ordinarily previous. This previous position of it might be expected if the ideas embodied in the proposal of treatment by the genu-pectoral

position were adequate to the whole explanation of the position of the cord during pregnancy.

Replacement and keeping replaced by aid of the genu-pectoral position is not singular as a remedy in its failure to fulfil the expectations of its promoters. Its advantages, however, are such as to retain for it a certain place in the therapeutics of prolapse of the cord. The limitation of its utility in maintenance of replacement arises from the important part that expression takes in the production of the accident; and the same fact throws the practitioner more and more upon the alternative method of treatment by hastening delivery in such cases as are on other grounds proper subjects for it.

The reappearance of the prolapsed cord after replacement in the genu-pectoral position is a striking illustration and proof of the potency of expression.* But this subject demands further careful consideration; and its comprehension is facilitated by a study of the analogous reproduction of prolapse after replacement of a prolapsed limb.

The action of the uterus upon the fœtus so as to produce special progress of mobile parts is exemplified in the passage of meconium from the rectum in breech and footling cases. An analogous phenomenon is still oftener observed in vertex presentations after the birth of the head alone. Then, the pains of labour acting on the trunk expel, at each return, a quantity of fluid through the mouth and nostrils, which must have come from within the thorax; and this expulsion, or squeezing-out, sponge-like, is no doubt one of the many concurrent advantages of slow and gradual as opposed to precipitate birth. Another analogous but rarely observed phenomenon, I have witnessed in a case of intra-uterine hydrocephalus. In this case the child was born alive and survived several days. This result was secured by tapping the hydrocephalic head with a small trocar and canula. The water flowed freely, a little at first, in the absence of a pain; and subsequently its flow was increased during a pain;

* On this subject, see remarks, anticipating mine, by Dr. Roper, 'Obstetrical Transactions,' vol. xvii, p. 319.

till at last, and before complete evacuation of the head, the flow took place only during a pain. Still another analogous phenomenon is observed in cases of craniotomy, the brain being gradually expressed through the opened calvarium by the recurring pains, and this although no advance of the presenting part is going on. More remote analogies are to be found in accidents which are the result, not of expression or forcing out, but of forcing in, such as the infarction of the lungs in attempts at inspiration, and the forcing of cerebral tissue into the heart and great vessels, and elsewhere, in operations compressing the fœtal head, as recently described by Carl Ruge.

The most frequent expression of mobile parts, and the best illustration of expression of the cord, is the prolapse of a limb, generally an arm, by the side of the head at any stage of its progress; or the birth of an arm after the head alone is born, the arm advancing from its usual position through the vulvar orifice, while the thorax is very inconsiderably propelled. Indeed, after the birth of the head, it is not extremely rare to observe the expression of the cord before the thorax.

The cord during labour, after the discharge of the waters, forms part of the advancing mass, lying in apposition to the fœtus, with which it has a certain solidarity. All parts of the fœtus are propelled, but not at the same rate, as many facts demonstrate; and the rate of progress of parts will vary according to the resistance. More mobile parts will have, in consequence of that mobility, less resistance to encounter; and it is plain that the limbs and the cord are the most mobile of the solid parts. Less mobile parts will undergo less of an analogous progress or displacement; and this is exemplified in the changes of relative position of parts. Most parts resume their ordinary shape or position immediately on being born, and are not seen in their state as altered by expression. But to this there is exception in the case of the bony head, and then the changes of shape are recognised in the well-known shears of it.

It is important, with a view to many subjects discussed in obstetrics, to have correct views as to the condition of the

fœtus in respect to rigidity or viscosity. That it is not rigid I have already incidentally shown, but it is not enough to admit its viscosity; for it is evident that it is desirable to have some notion of the degree of its viscosity, and of the influence on this viscosity exerted by the bones, and especially by the spinal column.

The recent writings of Lahs,* Stephenson,† and of A. R. Simpson,‡ show plainly not only that they do not regard the fœtus as a rigid body, but also that they have remarked a prevalence in obstetrical writing of the important theoretical error of assuming its rigidity, and especially the rigidity of the spinal column. In the course of this paper I have stated facts sufficient absolutely to demonstrate that the fœtus is not rigid; and this may be assumed as incontrovertible.

On the other hand, it is evident that the varying constituent parts of the fœtus make it impossible to regard it in labour as simply a uniformly viscous mass.

Some parts are more nearly rigid than others, but none are nearly absolutely rigid. Stephenson seems to regard the head as rigid,§ but the occurrence in it of shears shows that this is not the case.

The degree of viscosity, or of partial rigidity of parts of the fœtus, or of the whole, is well known to be greatly modified by the changes consequent on death; and the great influence of these post-mortem changes upon the mechanism of delivery attests their high practical importance.

Writing on an allied subject in 1872 || I make the following remarks:—"Another element of confusion is introduced in the want of uniformity which exists in the composition of the fœtus as a mechanical body. It is especially to be noted that it contains a longitudinally placed elastic beam of con-

* 'Die Theorie der Geburt,' 1877.

† "On the Mechanism of Labour," 'Obstetrical Journal,' 1877-78 and 1878-79.

‡ 'Edinburgh Medical Journal,' April, 1879.

§ 'Obstetrical Journal,' 1877-78, p. 646.

|| 'Mechanism of Natural and Morbid Parturition,' pp. 37 and 59.

nected vertebræ, which lies nearer the surface of the mass at one side than at the other. Although the fœtus is provided with a vertebral column, which considerably differentiates its condition from that of anything having freely movable constituents, yet I believe that it must be regarded as in the main a peculiarly modified viscous mass. When propelled, its parts are all squeezed and compressed; and, if the head is born, fluids are seen to be forced out of the mouth and nostrils. A part more movable than the rest may be propelled alone, or more quickly than the other parts, as is frequently observed in the case of the cord, or of an arm and hand, and this under various circumstances, and especially frequently after the head alone is born. The rare expulsion of the placenta before the child sometimes illustrates the same condition."

Dr. J. Braxton Hicks was convinced that the discussion mentioned in the paper just read was the true one, and he had been in the habit of pointing this out for the last ten years in his lectures. Namely, that there were two conditions, in one of which the funis was squeezed out because there was no room in the uterus for it, and, if one endeavoured to replace it, if it remained it would be subjected to greater pressure than even if it were prolapsed, so that the expedition of labour was the best plan, did the nature of the case permit it; and the other condition was the falling of the funis out of the flaccid uterus, in which case we might restore the funis without any fear of its being compressed. In these cases the genu-pectoral posture answered often; but there was another plan not mentioned in the author's paper, which he had suggested incidentally in his work on "Turning," to which he hoped to be pardoned if he alluded, namely, that of placing the funis by the hand into the uterus, and then with the hand outside pressing down the head into the os uteri, and keeping the pressure up for three or four pains, when it would generally be found that the uterus had contracted round the head and the funis retained; at least, this had been the result in all his own cases and in those he had heard of its being tried.

Dr. Roper remarked that he had brought the subject of prolapse of the funis before the Society in a paper, published in its 'Transactions,' vol. xvii. He therein described the different conditions under which the cord came down—how its reposition was generally easy during uterine diastole; but the great difficulty was in retaining it in position, as the next pain would

force it down; or, as Dr. Matthews Duncan says, express it. A marked condition of the cord during this "expression" consists in its great tension caused by the blood being squeezed down into it.

Dr. MATTHEWS DUNCAN thanked Dr. Hicks and Dr. Roper for their confirmatory remarks. Like Dr. Hicks he had taught the expression or squeezing-out doctrine for some time, but he was not aware Dr. Hicks or any one else had done so. He ought to have known of Dr. Roper's published remarks on the subject, and if his paper were published he would do justice to them.

DECEMBER 3RD, 1879.

WILLIAM S. PLAYFAIR, M.D., F.R.C.P., President, in the Chair.

Present—56 Fellows and 12 visitors.

Books were presented by Dr. Matthews Duncan, M. Léon Dumas, and the Royal Medical and Chirurgical, and Clinical Societies.

Arthur Guy Elkington, M.R.C.S., was admitted a Fellow of the Society, and the following gentlemen were declared admitted:—Thomas M. Dolan, F.R.C.S. (Halifax); Charles Henry Joubert, M.B. (Calcutta); and William Walter, M.D. (Manchester).

The following gentlemen were elected Fellows:—J. M. Biggs, M.R.C.S.; W. J. Bonnor, M.R.C.S.; A. Ferrier Churchill, M.B. (Aldershot); Geo. H. Cowan, M.B. (Ontario); George Harvey, L.R.C.P. (Wirksworth); James M. Howie, M.B. (Liverpool); H. N. MacLaurin, M.D. (Sydney); E. R. Nicholson, M.D.; Theoph. W. Pauli, L.R.C.P. Ed. (Luton); Thomas Raitt, M.D. (Woolwich); and Wm. J. Tivy, F.R.C.S. (Clifton).

The following gentlemen were proposed for election:—Walter Balls-Headley, M.D. (Melbourne, Victoria); Arthur Mudge Branfoot, M.B. (Madras); Lewis Sidney Downes, L.K.Q.C.P. Ireland; James Hill, M.D. (Glasgow); Alfred Kebbell, M.R.C.S. (Flaxton, York); Charles Orton, M.R.C.P. Ed. (Newcastle-under-Lyme); Thomas Franklin

Pedley, M.R.C.S.; and Robert Peel, L.K.Q.C.P. Ireland, M.R.C.S. (Adelaide, South Australia).

Dr. GALABIN showed a microscopic section of a portion of menstrual decidua passed on the first day of menstruation. The patient was about thirty years old, not sterile, and suffered only from occasional dysmenorrhœa. She had no membranous dysmenorrhœa, in the ordinary sense of the term, but a small fragment of membrane, about a quarter of an inch long, was found in the discharge. Its thickness was not more than one quarter that of the fully-developed mucous membrane. After hardening, sections were made parallel to the surface. The sections showed the gland tubes cut across, and having their epithelial lining perfect. Although it would seem that the disintegration of the mucous membrane in menstruation must have been less perfect than normal, there was no undue fibrillation in its structure. Indeed, less was seen of fibrillæ or of elongated cells than he had ever found in sections of the uterine mucous membrane *in situ*. The tissue consisted solely of larger and smaller round nuclear cells, with some homogeneous inter-cellular substance.

Dr. Galabin showed, also, a section from the anterior lip of the cervix uteri from a case of deep bilateral laceration with ectropion. The posterior lip was affected by early epithelioma, merging into medullary carcinoma; the anterior lip presented the appearance of ordinary granular inflammation or erosion, with the so-called "Nabothian glands." Both lips had been removed by the galvanic écraseur. The section of the anterior lip showed that the healthy squamous epithelium ceased at a point three quarters of an inch outside the edge of the os, instead of being continued, as it normally should be, a quarter of an inch within it. Over the intervening inch of surface the epithelium alternated between the cylindrical form and an imperfectly-formed squamous epithelium, only a few cells deep, and entirely destitute of papillæ or superficial horny layer. It had no clear line of demarcation from the stroma beneath. Beneath the surface

were numerous dilated mucous glands, and much infiltration with inflammatory cells. At one point, near the squamous epithelium, was seen a single cell mass, which appeared to be an independent commencement of the ingrowth of epithelioma. It was clear that either the original cylindrical epithelium lining the cervical canal had been partially converted into imperfect squamous epithelium, or the original squamous epithelium partially replaced by cylindrical. Since it was scarcely possible that so much as one inch of the lining membrane could have become everted, it seemed that a part, at least, of the diseased surface must have been originally covered by squamous epithelium, and that the condition, therefore, was not merely exposure of cervical mucous membrane, but extension of inflammation beyond the original position of the os, with formation of adventitious glands, and development of epithelioma out of this inflammation.

Dr. CLEVELAND showed a thick, gelatinous cord, which illustrated the necessity for more than ordinary care in tying. The child was delicate, and born at the end of the seventh month. Having had a similar case he took the precaution, as he thought, to tie the cord securely, and saw that there was no bleeding at the time of its removal, but in the course of ten minutes the hæmorrhage was sufficient to endanger life. He drew attention to secondary hæmorrhage in such cases, and referred to an observation of Hohl's, quoted in Caspar's 'Forensic Medicine,' where fatal hæmorrhage occurred after twelve hours, although the utmost care seems to have been taken. Dr. Cleveland said it had been suggested by Mr. Spencer Wells that double ligature, passed through the cord with a needle, was an effectual mode of treatment.

Dr. HEYWOOD SMITH exhibited an uterus, together with the oviducts and ovaries, removed during the operation of hysterectomy, as well as the stump of the cervix, obtained at the necropsy four days afterwards. The removed uterus, &c., weighed twenty ounces. On making a section through

the uterine wall the cut surfaces bulged outwards. Wall measured two inches and a half thick, consisting of dense, tough, contractile tissue, with much fibrous tissue. The mucous membrane is very greatly thickened, ridged on its surface with distinct elevations and outgrowths. Microscope shows simple hypertrophy of the glandular structure, with appearance as of catarrh of surface. The dilated gland follicles pass down between subjacent bundles of contractile tissue. Large, thin-walled blood-vessels run up almost to the surface of the mucous membrane; the vessels of the uterine wall are not numerous. Both oviducts dilated, and their extremities converted into bundles of cysts, no aperture is seen. The right seven inches and a half long, and four inches and a half in circumference. Both contained bloody fluid, from which a firm red clot separated on standing. The inner surface is smooth, the rugæ are absent, and the uterine openings appear obstructed. The *right* ovary is converted into a single cyst of about double the normal size; the *left* is small, contracted, and corrugated.

Report on Mr. Cullingworth's Specimens of Solid Tumours of both Ovaries.—We have examined the solid tumours of both ovaries, exhibited at the last meeting of the Society, by Mr. Cullingworth, of Manchester. In presenting our report we think it well to state that the tumours, owing to *post-mortem* changes and to the action of alcohol, are not in a satisfactory condition for accurate examination of their more delicate cell-structures.

Both tumours are lobulated and tolerably firm, but in no way so tough and resistant to pressure as are typical fibrous tumours. Some parts are softer than others, such portions may readily be distinguished by physical examination.

On microscopical examination of sections of either tumour, the ordinary fibrous stroma of the ovary may be detected in considerable quantity, and for the most part presenting its normal characters. At certain points a general increase of the cellular elements is to be found, with abundant infiltration of lymph-cells, appearances known to exist in the stroma

in the early stages of cystic degeneration. At these points the veins, and the arteries, with their thick walls and helicine arrangement are normal in appearance.

With the exception of one small cyst and certain epithelial elements presently to be described, the Graafian follicles and ova appear to have perished.

The new-growth merges at different points into the normal ovarian stroma, without any definite line of demarcation. It presents, in different parts of the tumours, great variety in its minute structure. Some portions are almost entirely composed of oat-shaped spindle-cells with relatively large, oblong nuclei, others occur as small patches of round and oval cells in the ordinary stromal tissue; in parts, small open lymph-spaces are seen, bounded by large rounded masses of myxomatous tissue, which forms their walls; here the vessels have no other coats than the cells of the new-growth surrounding them.

In other parts of the tumours are large cells, apparently epithelial in character, and either scattered singly through the tissue, or arranged in masses. Probably these cells are the remains of the epithelial structures of the ovary, the possibility that they denote incipient carcinomatous degeneration also suggests itself, but the *post-mortem* softening of the tumours makes us unwilling to express a too positive opinion on this point.

Looking to their general characters we think the term mixed sarcoma would most correctly describe both tumours, no one element sufficiently preponderating to allow a more precise definition. They are even more variable than a tumour from a patient under the care of Mr. H. Taylor, of Guildford, which resembled them in some respects, and is described by one of us in the twenty-ninth volume of the 'Transactions of the Pathological Society,' p. 168. This tumour contained a preponderance of spindle-cells, yet it varied in parts, showing at certain points a beautiful myxomatous tissue, at others, dense collections of white fibres. In this case a similar process of degeneration was commencing in the opposite ovary.

We have examined portions of the wall of the small cyst in the tumour of the left ovary, and although we cannot detect any epithelial lining membrane, the arrangement of the layers of the stroma around the cyst, together with its perfectly circular shape, and its position, its thin walls bulging conspicuously from surface of the tumour, induce us to regard it as a dilated Graafian follicle.

J. KNOWSLEY THORNTON,
ALBAN DORAN.

REPORT OF EXPERIMENTAL INQUIRY, INSTITUTED TO DETERMINE WITH WHAT FLUIDS AND BY WHAT METHODS THE OPERATION OF BLOOD-TRANSFUSION MAY BEST BE PERFORMED, AND TO ASCERTAIN THE EFFECTS, IMMEDIATE OR REMOTE, WHICH RESULT FROM THE OPERATION IN ANIMALS.

By E. A. SCHÄFER, F.R.S.

IN conducting this inquiry, the first object aimed at was to determine whether it might be possible to replace the blood of an animal that had been subjected to depletion by any fluid other than the blood of an animal of the same species. Before pursuing this object, the most important fact to be ascertained was whether any fluid proposed exerted a deleterious effect upon either the red or the white blood-corpuscles. This could be determined in a microscopical preparation maintained at the temperature of the body, and accordingly the first series of experiments were of this nature. It will be seen that the result of these very much narrowed the scope of the first part of the inquiry.

Mixture of various fluids with human blood.

The following are the results of observations showing the action upon human blood of fluids which it is proposed

to use, and which in some cases have been, and are used for purposes of transfusion in the human subject :—

1. *A weak solution of common salt* (1 oz. of salt to the gallon of water).—This is the normal salt solution which is extensively used in physiological laboratories. Its action is too well known to need a detailed account. It is innocuous to the white blood-corpuscles; it renders the red corpuscles slightly crenate, and restrains their tendency to form rouleaux.

2. *Cows' milk.*—This, if obtained fresh, appears to exert no immediate deleterious action upon the human blood-corpuscles; but if it is at all sour it kills the white corpuscles. Even if fresh, the same effect results after the preparation has stood some hours, especially when it is kept warm, for an acid reaction is set up accompanying commencing fermentation.

3. *Blood or serum of other animals.*—As Landois* has shown, the admixture with human blood of the blood of many other animals, certainly of any of the common domestic animals, exerts a most deleterious effect upon the human red blood-corpuscles. The action is generally of such a nature that the human red corpuscles become swollen and decolorised, their colouring matter being discharged into the serum. The white corpuscles cease their amœboid movement, and become rounded and stationary, and their nuclei very distinct; a well-known indication of the death of the corpuscle.† Landois found that the corpuscles of the dog were the most resistant. Of all the kinds of blood tried by me, that of the ox and sheep was found to have the most rapid action; that of the rabbit and guinea-pig the least, but the blood even of the last-named animals was not without effect upon the human red corpuscles, and caused the cessation of the amœboid movements of the pale corpuscles.‡

* 'Die Transfusion des Blutes.' Leipzig, 1875. By far the most complete and scientific account of the subject that has yet been published.

† In one experiment, in which dog's blood was mixed with human blood, the human red blood-corpuscles were shrunken and crenated, whilst those of the dog were broken up and decolorised, and crystals of hæmoglobin became formed in the coloured serum.

‡ The solvent action of the blood of one animal upon the red blood-corpuscles

Sometimes the discharge of the colouring matter of the human red blood-corpuscles is very speedy, even with serum of rabbit's blood. In a preparation observed for me by my pupil, Mr. J. Eckstein, the process began almost as soon as the mixture was made, and was completed in a few minutes. The rabbit was a young one. Landois found that rabbit's serum generally took some hours to act upon the human red corpuscles. As the result, then, of these experiments, we see that the employment for transfusion into the human blood-system of the blood of any of the lower animals, presents no probability of any permanent good resulting from its use. It is, moreover, liable to be attended with most dangerous results. Some of the evils that may be apprehended from the use of such blood, are, firstly, those that result from the destruction of the red blood-corpuscles, and secondly, those that result from the deleterious action of the foreign blood upon the walls of the living blood-vessels and other tissues. The destruction of red corpuscles, and the consequent introduction of free hæmoglobin into the blood-plasma, produces bloody urine, ecchymoses in various parts, and a tendency to the formation of fibrin in the blood, and consequently to embolism. And injury to the walls of the living blood-vessels would probably produce thrombosis in any parts so affected. Moreover, it is certain that in introducing foreign blood into the system you are introducing a substance which, as its action upon the white corpuscles indicates, is an actual poison to all the living tissues, and probably especially so to the nervous and muscular systems.

It will probably be urged that in numberless cases the blood of the domestic animals has been transfused into the human blood-system* without a fatal effect, and that in some cases even it has been described as having been attended with beneficial results. Upon the last statement there are the strongest possible reasons for casting doubt, and in cases where a serious issue has not resulted from the experiment, the

of another has been noticed by many observers. But far too little attention has been called to the not less important fact that the white corpuscles cannot live for any length of time in foreign blood.

* By Hasse and others.

probability is that the subject has recovered in spite of rather than in consequence of the procedure. Moreover, it must be borne in mind that it is one thing to mix a few ounces of foreign blood with the ten or twelve pounds weight of blood of a healthy subject, and quite another thing to replace a large portion of the lost blood of a depleted subject by a relatively large quantity of foreign blood. In the former case the healthy blood will so much more dilute the foreign admixture, and will be so much better able to resist its deleterious effects than in the latter.* Many careful modern experimenters, and notably Panum and Landois, have as conclusively established that the blood of an animal belonging to a different genus cannot be entirely substituted for the proper blood as the fact that the blood of another animal of the *same* species *can* be so substituted, was established by the famous experiment of Lower. I have, myself, made but two experiments of the former kind. In the one, dog's blood was transfused into a depleted cat; in the other (defibrinated), lamb's blood into a slightly depleted dog. Both were fatal within twenty-four hours.

In the case of the other two fluids which have been suggested as possibly suitable for transfusion, the objection raised with regard to the employment of blood of the lower animals does not apply, for they (especially salt solution) may be freely mixed with human blood without producing any deleterious effect; but a little consideration will show that they can be of no benefit in such cases as those we are considering—cases in which speedy death is threatening in consequence of excessive loss of blood. It is not the diminution in the *quantity* of the circulating fluid that produces the effects which we see, for the diminished blood is at once replenished by the absorption into the vessels of much of the fluid which occupies the interstices of the tissues, and the tonicity of the blood-vessels soon enables them to accommodate themselves to the lessened amount that they have to convey. It is the deficiency in *quality*, the diminution in number of the oxygen-carriers, the red blood-corpuscles, which is the cause of the dyspnœa which is

* This was strongly insisted on by Blundell.

observed, and in those cases in which the actual depletion is survived even for but a few minutes, the immediate cause of death. The system is suffering from deficiency of hæmoglobin, and it is obviously useless to supply it with any fluid which does not contain this. Moreover, even should a supply of fluid alone be beneficial, it would be unnecessary to administer it by transfusion, for the half-filled blood-vessels of the stomach would greedily take up from that organ any fluid that might be administered by the mouth. These reasons alone seemed sufficient to deter from performing transfusion with the fluids in question, nevertheless, a few experiments were made with milk with the following results:

Effects of milk when injected into the vascular system of animals.

In *rabbits*, not previously depleted, the injection into the blood-vessels, of even a small quantity of ordinary fresh (*i. e.* not sour) London milk almost invariably produced death within forty-eight hours, in some instances within twenty-four. Examination of the blood after death showed the blood-corpuscles to be extensively destroyed, and a large development of bacteria to have occurred in the blood. As little as ten minims was in one experiment fatal to a rabbit. Six experiments of this nature were performed. In one the animal survived, in the other five the result was rapidly fatal.

If the milk were just previously boiled, and were injected by means of a physiologically clean syringe, and with ordinary precautions for the exclusion of germs, no detrimental results ensued, even although comparatively large quantities were employed. Of five experiments of this nature, one was followed by a fatal result, but the cause of death was not apparent. The same negative result was obtained when the milk was allowed to spurt direct from the previously cleaned teat into a glass vessel which had just been superheated. Two experiments were performed in this way.*

* These, and most of the other experiments on the effect of milk, were performed for and with me by Mr. G. F. Dowdeswell.

Dogs and Cats not previously depleted, resist the action of the septic organisms which the unboiled milk contains much better than do rabbits. Quantities which would certainly have proved fatal to rabbits, were without any apparent effect in dogs and cats.

In *depleted animals,* the injection of milk produced a slight temporary rise in the blood-pressure, but this very speedily disappeared, the pressure sometimes falling below the point at which it was before the injection. There was never any permanently beneficial effect. Ordinary unboiled milk which contains the germs of septic organisms is highly injurious to depleted animals, and ought never to be employed for transfusion.*

This series of experiments shows that milk and similar fluids cannot be used with any benefit for transfusion in cases of depletion. And we have previously seen that foreign blood—blood of an animal of another genus—is injurious to the blood-corpuscles and probably to all the living tissues of the body. The question then as to the fluid to be employed for transfusion is narrowed considerably:—The fluid used must always be the blood of another animal of the same species, or, at all events, of the same genus.† *In the case of man the fluid used for transfusion must always be human blood.* This is the answer to the first object of the inquiry.

The second object is to determine the best method of effecting the transfusion.

For this purpose it will be useful to compare together the various modes in which transfusion may be performed, and

* Shown long ago by Lower, but forgotten or disregarded. In modern times the subject has been again examined, and results almost exactly similar to mine have been obtained by Howe and by Dupuy in America. Howe's dogs "all died promptly." And yet Dr. Gaillard Thomas and others "are not deterred" from using milk for transfusion in the human subject!!

† Landois' experiments show that dog's blood can be transfused into (not substituted for that of) a fox, and *vice versâ,* without any ill consequences. The same has been established for the horse and ass, and for the sheep and goat.

this can be most conveniently done if we classify them and arrange them in tabular form.

Examination of the different methods of transfusion.

Transfusion may be either *mediate* or *immediate*.

In mediate transfusion, the blood obtained by venesection is received into a glass vessel, and may be defibrinated before transfusion. In immediate transfusion the blood is allowed to pass directly from the blood-vessel of the giver into that of the patient.

In mediate transfusion the blood may be injected either into a vein of the patient, or into an artery, and in the latter case either in a centrifugal or centripetal direction.

In immediate transfusion the blood may be allowed to flow either from a vein of the giver into a vein of the patient, or from an artery of the giver into a vein of the patient, or from an artery of the giver into an artery of the patient. And in the last case either in the direction of the capillaries, or in the direction of the heart, *i. e.* against the normal blood-stream. We have then

I. Mediate transfusion
- A. Into a vein.
- B. Into an artery
  - *a.* With
  - *b.* Against

  } the blood stream.

II. Immediate transfusion
- A. From a vein into a vein.
- B. From an artery into a vein.
- C. From an artery into an artery
  - *a.* With
  - *b.* Against

  } the blood stream.

In *mediate transfusion*.—The blood is generally defibrinated, otherwise the operation must be performed very rapidly, and there is a risk that clots will form in the apparatus or syringe and pass into the blood-vessels of the patient.* Further, since the blood cools considerably during the process of defibrination, this ought to be counteracted by the application of warmth to the glass vessel receiving it.

* One serious risk in the use of defibrinated blood, which seems to have been lost sight of, is met with in the fact that, even after having been whipped most completely and strained, some kinds of blood will often yield a further coagulum.

Lastly, but by no means of least importance, the blood is liable, unless elaborate precautions to ensure physiological cleanliness are taken, to become contaminated with the germs of putrefactive bacteria. The development of these may be effectually resisted under ordinary conditions of health and strength, even should they gain admittance into the blood; but, in the weakened condition of the organism produced by depletion, it is doubtful whether this would be the case.*

In *immediate transfusion*, in which the blood used is always in the unwhipped condition, the difficulties are (1) the tendency to the formation of clots in the apparatus and in the blood-vessel, (2) the cooling of the blood in its passage through the apparatus, and (3) its liability to take up germs of putrefactive bacteria from the interior of the apparatus. But these difficulties can be reduced to a minimum by increasing the simplicity of the apparatus employed. Now, the complexity of the forms of apparatus which have been recommended to be used in immediate transfusion, chiefly arises from the desire to measure the amount of blood which is transfused. A little consideration will, however, show that it is unnecessary to do this. It is the effect upon the giver of the loss of the blood, and upon the patient of the reception of the blood that must be measured. If the condition of the patient is rapidly improved by the flow, the operation has succeeded and the flow may be stopped; if, on the other hand, the giver becomes faint, the flow must at once be arrested. A finger upon the pulse of the giver and an eye upon the respiration of the patient, these are the best indicators of the length of time which the flow is to be allowed to continue. And if we give up the measuring apparatus with its valves and large internal surface, so liable to promote coagulation, we can reduce our appliance for transfusion to the condition of a simple, short, flexible tube with glass

* There can be little doubt that the power of resisting the development of bacteria which are introduced into the blood varies much in different individuals and in different states of the same individual. It certainly is very different in different animals, as is shown by the experiments with milk above recorded.

terminals, in which the liability to the formation of coagula, to cooling of the blood in transmission, to the admittance of germs, and to the entrance of air may be reduced to a minimum.

In thus deciding for simple immediate transfusion there are yet several modes to be considered. These arrange themselves under two heads:—1. As to the source of the blood, whether from a vein or from an artery; and 2, as to the destination, whether into a vein or into an artery.

1. *As to the source.*

A. *Whether from a vein.*—The arguments which may be brought forward against the employment of a vein as the source of blood in immediate transfusion are: Firstly, the flow of blood from a vein is comparatively slow, so that time is given for the formation of a clot in the connecting tube. Secondly, venous blood is less pure than arterial blood, and needs to be oxygenated by passing through the lungs of the patient before it is available for use. Thirdly, the liability of veins to become inflamed. On the other hand, it may be urged that a vein is more easily found and dealt with than an artery.

B. *Whether from an artery.*—It is obvious that blood from an artery, being pure and oxygenated, is, under the best possible conditions for effecting a rapid amelioration in the condition of a patient suffering from depletion of blood. Being at a high pressure, it can pass rapidly, and without the intervention of any pumping apparatus, through the tube connecting the two blood-vessels. Moreover, it can be allowed to pass directly into the arterial system of the receiver, which, in extreme cases, in which the patient is at the point of death, would be of great advantage. The arguments against the use of an artery as the source of blood are, firstly, the fact that the arteries for the most part run deeply and are more difficult to find than the veins; and secondly, the very general dread amongst surgeons of opening an artery of any kind. Nevertheless, as I shall presently endeavour to show, an artery which is comparatively superficial may be found suited to the purpose, and when the

operation is systematically performed, there is little fear of danger.

2. *As to the destination.*

A. *Whether into a vein.*—Against this there is, firstly, the fact that in transfusing blood into a vein we do not put it where it is immediately wanted. The fresh blood, even if arterial, and therefore of the right quality, must take a circuitous course through the lungs before it is available for the nutrition of the system. Still, so long as the circulation is going on at all, this passage is rapidly effected. Secondly, there are well-known dangers attendant upon the process. There is the risk of admitting air, the risk of embolism in the heart or lungs from the admission of a clot, the risk of a too sudden distension of the right auricle, and a consequent arrest of the flow of blood from the cerebral veins (Landois), the risk of phlebitis. Lastly, in a bloodless patient, there is a difficulty in finding the vein, and in inserting a canula.

B. *Whether into an artery.*—In this case the blood must be derived from an artery. It may be allowed to flow into the artery either in the natural direction, or against the natural direction of the blood stream. The latter presents by far the greater advantages. For the blood being driven towards the aorta will tend to fill the whole arterial system of the patient, and will at once assist by supplying the heart (through the coronary arteries) and the whole body with pure arterial blood under a considerable pressure. The whole system may be expected immediately to benefit by the access of pure blood, and especially the heart to become strengthened. It may be objected that the fresh blood will not reach the aorta for it will flow away towards the capillaries by the branches which it first comes to in its passage upwards, and indeed, to some extent, this is to be expected. But nevertheless, the transfused blood must tend to meet, and drive back, the weaker stream of the patient, and in so doing increase the head of pressure and the blood supply in the whole arterial system. Many of the dangers attending the operation of transfusion are absent if an artery

be chosen to receive the blood instead of a vein. There is a possibility of the entrance of air into the blood-vessel, but the result can only be the temporary blocking of some small peripheral vessels with bubbles of air, instead of the churning up of the blood and air in the heart into a froth, and consequent obstruction of the pulmonary circulation which is liable to happen if air enters a vein. And there is a possibility of the formation of an embolus, but this again can only obstruct a small peripheral vessel and cause but temporary inconvenience. On the other hand, a difficulty is presented by the fact that it is necessary that an artery should also be used as the source of blood, and *without experience* there is some risk in dealing with arteries, even if it were always possible to find a person willing to submit an artery for the purpose. But surely the small operation necessary for transfusion should be learned and practised by every surgeon. The advantages of transfusion (of defibrinated blood by means of a syringe) into an artery instead of a vein have been very clearly demonstrated by Hueter (centrifugal method) and by Landois (centripetal method).

Experimental evidence in favour of direct centripetal arterial transfusion.

My later experiments have been chiefly directed towards ascertaining how far the operation of direct centripetal transfusion from artery to artery was feasible, since this method, from *à priori* considerations, might be expected to yield the most beneficial results, immediate and permanent; and further to discover by actual observation of the effects upon living animals, how far we may be justified in recommending that the operation should be performed on the human subject.

It was necessary in each case that the animal should be reduced to the condition of those patients for whose benefit the operation of transfusion is most often employed. The first step, therefore, after anæsthetising, was to deplete the vascular system by allowing a certain quantity of blood to

escape. It was convenient for this purpose to employ the same artery that was used to transfuse the new blood into. The animals used were cats and dogs, the latter being preferred, because in them one of the limb arteries could be used instead of the carotid.

The operation performed was in all cases of the simplest nature. In dogs the crural (femoral) artery was found, and about half an inch of it separated from the accompanying vein and nerves. It was then tied with a strong thread at the peripheral extremity of the isolated piece, and occluded at the central end of the latter by a spring-clip. An aperture having been made in the vessel a glass cannula was inserted and tied in.* Exactly the same process was gone through with the second dog. The first dog was now bled through the cannula. In some cases as much blood as would flow was taken, in others less, but in every case the animal was reduced to an almost lifeless condition, with few and gasping respirations, pallid mucous membranes, and a very much diminished blood pressure. Generally a second bleeding was resorted to after the lapse of a few minutes, for there is often a marked spontaneous recovery from the first depletion, even if it is excessive. A second depletion, however, although it may be comparatively small in amount, always produced a marked and permanent depression in the blood pressure.

A piece of india-rubber tubing was now taken and washed through with carbonate of soda solution, the cannulas were carefully filled with the same, and the india-rubber tube was slipped on to the cannula in the artery of the second dog—the giver. The clip on its artery was then opened for a moment to allow the india-rubber tube to fill with blood; its other end was slipped on to the cannula of the first dog, and both clips being opened blood was allowed to flow through the tube. The time of flow varied from one

* The operation above described may truly be called classical. It is the same as that of Lower (if the word "quill" be substituted for "glass cannula," and "running noose" for "spring-clip"), and exactly the same as that of Blundell.

minute to two and a half. The blood pressure was taken in both animals before, during, and after the transfusion. The clips were then shut, the arteries ligatured, the clips and cannulas removed, and the length of artery, which had been separated from its attachments, was cut out. The lips of the wound were, when necessary, united by a suture.

The effects of the transfusion were in every case most remarkable. Even a connection of one minute was sufficient to produce a marked and permanent rise in the blood pressure, with increase in force, and slowing of the heart's beats, and a return of the normal character of the respiration. A longer connection increased the effect, but not proportionately, and more than two minutes' connection seemed to produce no further benefit. Indeed, the tracings which were taken show that the blood pressure rises so rapidly in the depleted animal with the advent of the new blood that it may soon equal that in the blood-giver; and as this equilibrium becomes established the flow from the one to the other ceases. I think that this rapid rise of the blood pressure is caused not so much by the amount of the new blood as by its action in directly stimulating the muscular tissue of the small arteries to contract, as well as by the increase in force of the heart's beats consequent on the rise of pressure in the arterial system. And this stimulant action may be due to the fact that the new blood is somewhat cooled in transmission through the tube.

Immediately after recovering from the anæsthetic the depleted animal was able, in nearly every case, to walk, whilst the one that gave the blood was apparently none the worse for the amount it had surrendered. In some cases the patient was strong enough to run about, and take its usual food the next day after the operation, but often for a day or two it was weak and indisposed to move. This was mainly owing to the fact that the whole of the blood lost by depletion was not replaced by an equal amount of the new blood. For whereas in each experiment from four to ten ounces of blood were taken (the amount varying according to the weight of the animal), it is reckoned that in no case was

more than four or five ounces substituted, and generally far less.*

The animals were usually weighed every day after the operation and were found to increase steadily until they regained the weight they had before the experiment. This happened in about a week.

In one or two cases temperature observations were made, but no departure from the normal was noticed.†

One case terminated fatally from secondary hæmorrhage on the seventh day, but this animal was unhealthy at the time of the operation (skin disease).

As before noticed, in most of the experiments observations upon the blood pressure were recorded upon a revolving cylinder, and serve to show very clearly the remarkable and instantaneous effect which the centripetal arterial transfusion produces.‡ The detailed consideration of these and other points of a more purely physiological interest I purpose reserving for publication elsewhere.

Of these experiments on centripetal transfusion from artery to artery, I have performed thirteen in all, with a view to observing the remote as well as the immediate effect. I have just referred to the one case which terminated fatally from secondary hæmorrhage; all the others made good recoveries. Six of the thirteen were on cats, the other seven on dogs. Other experiments of a like nature were made solely with the view of noting the immediate effects of the transfusion, and the animals were killed immediately after.

* The amount was determined in one instance by weighing the giver very carefully before and after an experiment, in which the connection between the animals was kept open for two minutes and a half. The following is the result:

Weight before transfusion . .	3884 grammes.
Weight after transfusion . . .	3770 „
Difference . . .	114 „

† I regret that the imperfect arrangements and scattered form of laboratory for physiological work which at present exists at University College rendered careful observations upon the temperature, urine, &c., after the transfusions, almost impossible.

‡ See Appendix C.

Other methods of transfusion.

Although most of my late experiments have been of the kind just described, some were instituted to test the relative efficacy of other methods of transfusion, and especially direct venous transfusion, and others again to determine whether it were possible by transfusion to resuscitate a depleted animal in which the circulation and respiration had entirely ceased. The experiments on the last point have yielded so far negative results. Although the heart's beats may be resumed when blood is transfused centripetally into the arteries, the respirations, when they have once entirely ceased, seem never to recommence; probably the respiratory centre loses its vitality very speedily.

My observations on other modes of transfusion have been few in number, and in the main confirmatory of the results of other experimenters. They clearly show that direct transfusion from vein to vein is easy, and rapidly effectual, provided that the blood pressure in the arteries has not fallen to too low a point. There is a greater liability to clotting in the tube in consequence of the slower flow, but this is not a serious difficulty for there is generally time for enough blood to pass before the tube is occluded. Thus, in two experiments it was found that from five to six ounces of blood flowed in less than three minutes through a glass cannula (and fifteen inches long india-rubber tube), which was fastened into the external jugular vein of a dog, and it is certain it would not flow less quickly into a vein than into the air, for there is a very slight but distinct suction action in the veins, especially those near the thorax. The intervention of an elastic pump (as in Aveling's apparatus) does not accelerate the flow. On the contrary, it may stop it altogether (as happened in one of my experiments), owing to the thin flaccid wall of the vein being sucked against the mouth of the afferent cannula. Its use is to be deprecated on this account, and also because it is liable to force the clots which form in the tube into the patient's vein; moreover, it increases the extent of internal surface of the

apparatus, and hence the liability to the introduction of bacterial germs.

The use of pure india rubber for the cannulas and tubes has no advantage over glass and red vulcanised india rubber. Thus, I inserted one of the india-rubber cannulas of Roussel's apparatus (obtained from Messrs. Krohne and Sesemann) into a dog's jugular vein, and connected with it a piece of the india-rubber tubing of the same apparatus. About two ounces of blood flowed freely through the tube, and the blood then began to drop slowly. I next connected Roussel's pump to the end of the tube. On working the pump fluid blood mixed with clots was ejected, but the working soon ceased, the pump refusing to dilate. On examination both cannula and tube were found to be completely stopped up by clotted blood.

It is, moreover, impossible to understand how strong suction, such as the india-rubber pump exerts whilst dilating, could be felt for any distance along flaccid, collapsable tubes, like the superficial veins. There is no reason why the blood which is flowing along the veins of the donor should not just as readily, or even more readily, traverse a simple india-rubber tube, so long as clots do not occlude this. And if a simple tube be used there is no danger of any clots which may form on the wall of the tube being forced into the vein of the recipient.

With regard to the apparatus to be used for transfusion, I would most strongly endorse the dictum of Landois "Das Einfachste ist unbedingt das Beste." The more a transfusion apparatus departs from the primitive simplicity of a short simple tube the greater is the risk, not only of contamination with bacterial germs, and of the formation and introduction of clots, but also of the entrance of air into the circulation. In transfusing into an artery this would matter less, but in a vein it would be most serious. For although a little air can be introduced into a vein of a healthy animal with the supervention of only transient symptoms of distress, nevertheless, in a bloodless patient, the weakened heart would probably succumb altogether to the disturbance of its

functions which that distress indicates. And it is better to have glass rather than metal cannulas, so that the presence of any air in the apparatus may be detected. It is asserted by some that the contact with glass causes a deterioration (? coagulation) of the blood, but so far as I can ascertain there is not sufficient evidence to show that clean and smooth glass is more liable to promote coagulation than other materials of which tubes and cannulas are made.

I think, therefore, that direct transfusion through a short simple flexible tube is to be preferred to every other method. It may be either from a vein of the giver into a vein of the patient, or from an artery of the giver into an artery of the patient—centripetally. The former will probably be preferred in most cases, since it involves a less serious operation. And, I believe, that in most cases, with all due precautions to exclude air, direct venous transfusion is perfectly safe and rapidly effectual. But if the patient is absolutely *in extremis*, so that the failure of the heart is momentarily expected, then I think that direct arterial transfusion may yield results which are truly magical. Even should the heart have ceased to beat while the operation of inserting the tubes was being effected, I doubt if resuscitation might not result from the connection of the two arteries.* Certainly such a result could not follow transfusion into a vein.

Conclusions arrived at.

To recapitulate, the conclusions to which my own researches and the study of the results obtained by other observers have led me are as follows:

* Blundell, after describing his experiments on resuscitation after apparent death from bleeding, says, "The preceding experiments do not enable me to decide whether in apparent death from bleeding a preference should be given to the injection of blood into the (jugular) vein or the (carotid) artery; but I think on the whole the blood ought to be injected into the (carotid) artery *towards the heart, in order, if possible, to renew the circulation through the coronary vessels.*"

1. Ordinary milk is highly detrimental, and ought never to be used for transfusion.

2. Solution of salt, and any other watery fluid, is without permanent benefit, and should never be used for transfusion.

3. The blood or serum of the lower animals is highly detrimental, and in large quantities fatal, and ought never to be used for transfusion in the human subject.

4. The only fluid which can be employed with any benefit for transfusion in the human subject is human blood, and this may be either in the normal or in the defibrinated condition.

5. The less the blood used for transfusion is suffered to come into contact with foreign surfaces the better is likely to be the ultimate result.

6. Consequently, the more the apparatus used is simplified the better is likely to be the result.

7. The simplest and best form of apparatus is a short, flexible tube, terminating in glass cannulas, which is used to directly connect either a vein of the giver to a vein of the patient, or an artery of the giver to an artery of the patient.

8. The amount of blood used may be measured by the time of flow. Enough blood would probably flow from vein to vein in three or four minutes; from artery to artery (towards the heart) in half a minute or a minute.

9. In ordinary cases in which transfusion is required it will probably be found most convenient to employ the method of direct transfusion from vein to vein, but in cases where death is imminent direct transfusion from artery to artery towards the heart ought, if possible, to be carried out.

10. Failing any person willing to submit to have a cannula inserted into a blood-vessel, but, nevertheless, one being found ready to yield blood into a basin by the ordinary process of venesection, transfusion may yet be tried, although with greater risk to the patient, by means of a syringe or elastic pump. The arm of the giver and the interior both of the basin and of the instrument ought to be washed thoroughly with hot water containing carbonate of soda in solution, and the blood injected quickly without defibrination, and with every precaution to prevent the introduction

of air. Injection into an artery of the patient towards the heart, as recommended by Blundell, ought to be preferred to any other mode. If the injection is into a vein a funnel with an india-rubber tube, provided with a spring-clip, and with the cannula for the vein attached to the end of the tube, is as simple and effectual an apparatus as could be devised.

APPENDIX A.

I append the directions and precautions necessary to be observed in performing the operation of direct transfusion through a simple tube.

1. *Direct venous transfusion.*

Apparatus required.—Two glass cannulas of appropriate size and shape (see figure A), and a piece of black india-rubber tubing seven inches long, and not less than a quarter of an inch bore, fitted to the cannulas. This apparatus could always be improvised.

Procedure.—Place the transfusion tube in a basin of hot water containing a little carbonate of soda. Put a tape round the arm of the patient just below the place where the vein is to be opened and another just above. Expose the vein by an incision through the skin, which should be made transversely if the position of the vein cannot be made out through the skin. Clear a small piece of the vein with forceps, and slip a pointed piece of card underneath it. By a snip with scissors make an oblique opening into the vein, and partly insert a small blunt instrument (such as a wool-needle) so that the aperture is not lost. Remove the upper tape. Next prepare the vein of the giver. To do this put tapes around the arm just below and above the place where

the vein is to be opened. Expose the vein by a longitudinal incision through the skin. Clear a small piece of the vessel with forceps and pass a thread ligature underneath. A slip of card may also be placed under this vein. Make a snip into the vein just above the ligature, and then, taking the transfusion tube out of the soda solution, slip one of the cannulas into the vein of the giver, and tie it in with a simple knot, which can be readily untied. Let the giver go to the bedside and place his arm alongside that of the patient. Hold the end of the india-rubber tube with the second cannula up a little, and release the lower tape on the arm of the blood-giver. As soon as blood flows out of the second cannula pinch the india-rubber tube close to the cannula, so as to stop the flow, and removing the wool-needle, slip the end of the cannula into the vein of the patient, hold it there, and allow the blood to pass freely along the tube. Three minutes will generally be long enough for the flow, which can be stopped by compressing the vein of the giver below the cannula. Both cannulas may now be withdrawn and the ligature removed from the vein of the giver, the cut veins being dealt with in the usual way. Of course, the other tape on the arm of the donor must be removed as soon as the transfusion is over.

Instead of using the transfusion tube empty it may be filled with soda solution to the exclusion of air. It is necessary to have one or two spring clips on the tube to prevent the escape of the solution. This is a much better plan than the other, for the blood need not be allowed to flow into the tube until the second cannula is inserted, and then, by opening the clips, it may drive the soda solution before it into the vein. The small quantity of carbonate of soda solution necessary to fill the simple tube will do the patient no harm.

2. *Direct centripetal arterial transfusion.*

In the first place we have to determine what artery or arteries would be most available for the purpose. The (left) radial artery could be most easily dealt with, and its use

would involve less subsequent inconvenience to the donor of the blood than any other. But if it is considered necessary to choose some other artery, I think the dorsal artery of the foot should be selected, for its employment presents several advantages. It is a minor artery, but nevertheless large enough for the insertion of a cannula; it is comparatively superficial, and pretty easily found; and by causing the person yielding the blood to stand up, a great amount of pressure may be obtained in it. In the bloodless patient, especially if there be much subcutaneous fat, this artery might not be readily found.

Apparatus required.—A piece of india-rubber tubing, six or seven inches long, two glass cannulas of appropriate shape and size, like that marked B in the figure, and some spring clips, two of which should be small for compressing the arteries, the others larger and adapted for clipping the tube. The smaller clips might be dispensed with, and ligatures fastened with a slip bow might be used instead, in the way Lower recommended. Before commencing, it is important to ensure that the india-rubber tube cannot slip off the cannulas. It ought to be secured to them by tight ligatures, or by binding wire. This precaution is necessary because the arterial blood is under considerable pressure. This would tend to force the tubes apart and might cause copious hæmorrhage.

The transfusion tube is to be placed as before in carbonate of soda solution.

Procedure.—The artery of the patient must first be exposed. To do this make an incision an inch in length through the skin over the line of the artery, and then divide to an equal extent the subcutaneous tissue and fascia which covers it. About three quarters of an inch in length of the vessel is to be separated from the ensheathing connective tissue and from its accompanying veins by slipping a blunt instrument, such as an aneurism needle or the blade of a forceps, underneath and moving it up and down. A small piece of card,

cut into a long triangular shape, may then be placed under instead of the needle. A ligature is next tied tightly around the lower end of the piece of artery, another is looped loosely around the middle, and a spring clip is put on close to the upper end. The vessel may now be opened just above the lower ligature by a snip with the scissors.

If the artery have any branch at the exposed part this ought to be tied before commencing to isolate the vessel. In the person who is to yield the blood exactly the same process is carried out.

The transfusion tube is next filled (by suction) with soda solution, and this is prevented from escaping by one or two spring clips on the tube.

One of the glass terminals is tied into the artery of the giver, and the other into the artery of the patient, the ends of both being directed towards the heart.

All is now ready for the transfusion. To effect this, remove the clips on the india-rubber tube and open the clip on the artery of the patient, then open—not remove—that on the artery of the giver, and keep it open one minute, or a little longer if it seems advisable. Allow the clips to close again, and if the patient's condition is ameliorated, the operation may be ended by tying the arteries—first that of the giver then that of the patient—just above the clips.

Finally, cut out and remove the cannulas, together with the pieces of artery into which they are tied.

APPENDIX B.

TABLE OF SOME OF THE EXPERIMENTS PERFORMED IN THE PROCESS OF THIS INQUIRY.

Milk transfusion without previous depletion.

No.	Animal.	Milk quality.	Quantity.	Injected into—	Result.	Remarks.
1	Rabbit	Ordinary	2½ fl. drs.	Crural artery	Died during following night	Blood taken from heart found teeming with numerous and active bacteria; red corpuscles extensively decolourized (winter time).
2	„	„	2½ „	„	Died same night	Similar appearances in blood.
3	„	Boiled	2½ „	Jugular vein	Unaffected	
4	„	„	5 „	„	„	
5	„	Ordinary	½ „	„	„	
6	„	Boiled	1½ „	„	Apparently unaffected	Died eight days after; nothing abnormal observed except parasitic cysts in liver, which probably the cause of death.
7	„	Ordinary	½ „	„	Died in 28 hours	Blood presents same appearance as in 1 and 2.
8	„	Quite fresh and uncontaminated	½ „	„	Unaffected	The milk was drawn direct from the cleaned teat into a previously superheated vessel.
9	„	„	3 „	„	„	Drawn direct as in 8.
10	„	Ordinary	½ „	„	Died on 3rd day	
11	„	„	½ „	„	Died in night	Bacteria in blood; red corpuscles becoming decolourized.
12	Dog	Boiled	3½ „	Vein of leg	Unaffected	
13	„	Ordinary	½ „	„	„	
14	„	„	3 „	„	„	
15	„	„	3 „	„	„	
16	Cat	„	3 „	Jugular vein	„	

Milk transfusion with previous depletion.

No.	Animal.	Weight.	Amount of depletion.	Amount of milk injected.	Result.
1	Cat	7 lbs.	⅓rd of whole quantity of blood (reckoning blood $\frac{1}{13}$th body weight)	1 oz. in two quantities	Death a few minutes after second injection.
2	Dog	5¾ „	Ditto	1½ oz. in three quantities into vein	Died during the injection of the third half ounce; each injection was followed by not a rise but a fall of blood pressure.
3	Rabbit	Large	4 oz. blood allowed to flow from carotid	2 oz. 3½ drs. injected into jugular	Died 1½ hours after the injection; convulsions; the injection of milk caused a slight immediate rise in the arterial pressure.

Blood transfusion with previous depletion.

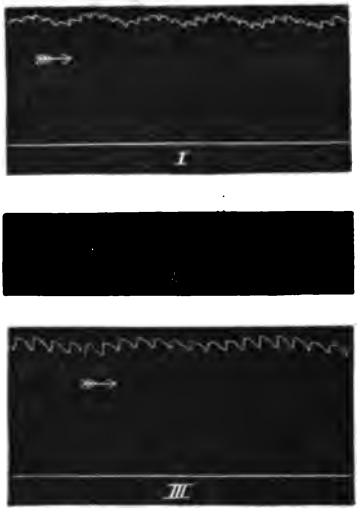
No.	Animal.	Weight.	Artery or vein used to transfuse into.	Condition of blood.	Amount of depletion.	Amount of blood used and time of flow.	Result and remarks.
1	Dog (rough terrier)	9 lbs.	Ankle vein	Defibrinated of same animal	19 drs.	6 drs. (3 drs., followed in 8 minutes by 3 drs. more)	Blood pressure fell to about half the original amount after the bleeding, but quickly rose again to the normal after the transfusion; temp. 38°C. immediately after transfusion, 39·3° next day; good recovery.
2	Dog (long-haired terrier)	11 lbs.	—	Defibrinated lamb's blood	3½ oz.	2 oz.	Died next day.

Blood transfusion with previous depletion—continued.

No.	Animal.	Weight.	Artery or vein used to transfuse into.	Condition of blood.	Amount of depletion.	Amount of blood used and time of flow.	Remarks.
3	Cat	About 5 lbs.	Carotid artery, central end	Arterial blood from carotid of another cat	2 oz. (1½ oz. 2 drs. after 2 min, 2 drs. after 15 min.)	3 separate connections of 1 minute each	Distinct recovery of arterial pressure after one minute's connection, nearly normal after second minute; before the connection the effect of tilting the board, so that the head might be dependent, was tried; the resulting rise in blood pressure was very slight, even when the legs were raised to fifteen inches higher than the head; good recovery.
4	„	4½ lbs.	„	„	2½ oz.	1 minute	Immediate effect very striking; pressure rose even higher in depleted animal (immediately after the transfusion) than in donor; good recovery.
5	„	5 lbs. 14 oz.	„	„	2 oz. 5 drs. (1 oz., 1 oz., 3 drs., 2 drs., at successive intervals of 3 minutes)	„	
6	„	About 5 lbs.	„	„	3 oz. in successive quantities of 1 oz. at intervals of 3 min. and 15 min. respectively	1¼ minute	The pressure did not fall very low, even after the loss of the third ounce of blood; the rise of pressure after the union was not so marked as usual, but the heart's beats were much strengthened.
7	„	5½ lbs.	„	„	12 drs. at first, 6 drs. nearly an hour after	2¼ minutes	The pressure was not very much reduced by the depletion, nor was it very much raised by the prolonged connection.

8	„	5¼ lbs.	„	„	3 oz. (first 1 oz., after some interval 2 oz. more)	2½ minutes (1½ minute and 1 minute)	The blood-giver was a small cat, and its blood pressure was much reduced by the connection; that of the recipient, on the other hand, was very much raised.
9	Dog	7½ lbs.	Femoral artery, central end	Arterial blood from femoral of another dog (13 lbs. 4 ozs.)	3 oz. 3 drs. (2 oz., 6 drs., 4 drs., 1 dr.)	1 minute	Apparently none the worse immediately after; weight entirely recovered in a week.
10	„	8½ lbs.	„	„ (10 lbs. 6 oz.)	5 oz. (3½ oz., 1½ oz.)	2 minutes	
11	Bitch (Skye terrier)	12 lbs. 10 oz.	„	Entire arterial blood from femoral of a dog weighing 12 lbs. 4 oz.	6 ozs.	„	Fed only on milk for three days and lost weight, but with meat diet rapidly gained; normal weight on tenth day.
12	Bitch	8 lbs. 10 oz.	„	„ (10 lbs. 12 oz.)	—	—	Blood pressure reduced from about six inches to two inches by bleeding; raised to four inches after three minutes' connection.
13	Dog	12 lbs. 8 oz.	„	„ (about same weight)	6 oz.	2 minutes	
14	„	About 5 lbs.	„	„ (9 lbs. 11 oz.)	6 oz.	„	
15	„	5 lbs. 14 oz.	External jugular vein	Blood from external jugular vein of another dog (9 lbs.)	5 oz. 3 drs. (5 oz.; 3 drs.)	2½ oz.	Aveling's transfuser used, previously filled with bicarbonate of soda solution; about half an ounce of this was therefore first injected, and then two ounces and a half of blood.
16	„	11 lbs. 3 oz.	„	„ (8 lbs.)	10½ oz. (9 oz., 1½ oz.)	2½ minutes	Blood allowed to flow through an india-rubber tube about fifteen inches long, previously filled with bicarbonate of soda solution. In both 15 and 16 the arterial pressure rose gradually during the transfusion until it attained about three-quarters of its original amount.

APPENDIX C.



Tracings (taken with Fick's kymograph) of the pressure in the femoral artery of a dog. I. Normal. II. After considerable loss of blood. III. After two minutes' connection with the femoral artery of another dog.

The weight of the dog used was 3530 grammes; the amount of blood withdrawn 195 grammes, in successive quantities of 14, 96, 55, and 30 grammes (an interval of twenty minutes between the second and third depletion; a minute or two between the others). The straight line in each case is the abscissa. To obtain the absolute pressure as expressed by a mercury column the ordinates must be multiplied about six times.

Both animals were completely under the influence of ether throughout the experiment.

APPENDIX D.

List of Works on Transfusion consulted.

Philosoph. Trans., vol. i, for the first exact experiments on transfusion.

*P. Scheel. Die Transfusion des Blutes, &c., Copenhagen, 1802. In this work an account is given of all the literature of the subject up to that time.

J. Blundell. Researches, Physiological and Pathological, 1824.

Bischoff. Müller's Archiv, 1835 and 1838.

Brown-Séquard. Comptes rendus de la Société de Biologie; C. r. de l'Academie des Sciences; Journal de la Physiologie (1849–1858).

Panum. Virch. Arch., 1863 and 1875.

Kühne. Centralbl. f. d. Med. Wiss., 1864.

Aveling. Obst. Trans., 1865.

G. Hewitt. Obstet. Trans., 1865.

Hueter. Centralbl. f. d. Med. Wiss., 1869. Arch. f. Klin. Chirurgie, 1870.

Herzberg. Inaug. Diss., 1869.

B. Hicks. Guy's Hospital Reports, 1869.

Belina. Comptes rendus, 1869, and Arch. de Physiologie, 1870 and 1873 (2me edition).

Albini. Circulazione e Transfusione, 1872.

Worm Müller. Die Abhangigkeit des arteriell. Druckes v. d. Blutmenge, 1873.

Caselli. Considerazione sulla Transfusione, Bologna, 1874.

*Gesellius. Die Transfusion, &c., 1873, and Zur Thierblut Transfusion beim Menschen, 1874.

Moncoq. Transfusion Instantanée, &c., 2me edition, 1874.

Hasse. Die Lammblut-Transfusion, &c., 1874.

Lesser. Transfusion und Autotransfusion, 1875.

*Landois. Die Transfusion des Blutes, Leipzig, 1875.

Beiträge zur Transfusion des Blutes, Deutsch. Zeitschr. f. Chirurgie, 1878.

JULLIEN. De la Transfusion du Sang, 1875.

T. GAILLARD THOMAS. Intravenous Injection of Milk, 1878.

ROUSSEL. La Transfusion, 1876. Rapport sur la méthode, &c., 1876.

Many other works have come under notice in addition to these. On the other hand, there are others which I have not seen, but am only acquainted with from the references made to them by other observers. I have not attempted to give an account of the literature, for it will be found in the works of so many of those who have preceded me in the subject. Those books and papers in the above list which contain the fullest account of the literature are marked with an asterisk, and of these the two works by Landois will best repay consultation.

The PRESIDENT said that he felt sure that the Society would agree with him as to the great value of Mr. Schäfer's report, which, he did not doubt, would greatly improve our knowledge of the operation of transfusion, and extend its usefulness. One good resulting from it would be that it would place it on a more scientific footing, and would at once put a stop to such experiments as the transfusion of milk and other fluids, of which we had heard a good deal from America, and the unscientific value of which, it seemed to him, Mr. Schäfer's report had conclusively settled. He was struck with the fact that he had made but little reference to the use of defibrinated blood, which was the procedure he (the President) had employed in the operations he had performed, and with good results. The experience of Mr. McDonnell, and others, in Dublin was strongly in favour of his method. It possessed the great advantage of not necessitating any hurry or rapidity of procedure, the blood being prepared in another room, so that every step of the operation may be performed with the greatest deliberation. Those who recall to mind the scene generally attendant on cases of post-partum hæmorrhage requiring transfusion will readily appreciate the advantage of this. The risk of embolism from portions of fibrine unremoved by straining he believed to be hypothetical. As regards immediate transfusion by Aveling's method, he had refrained from trying it because it seemed to him that his management of the apparatus was too complicated for general use without preliminary practice, which few had resorted to.

Schäfer's method of obtaining the same object seemed much more simple, and he would certainly try it should the opportunity for doing so present itself. He feared, however, that arterial transfusion, as described by him, would prove too difficult for ordinary use. The President concluded by offering Mr. Schäfer the thanks of the Society for his interesting communication.

Dr. J. Braxton Hicks remarked that the paper made no mention as to the use of a mixture of saline solution with blood to prevent coagulation, a plan which he had recommended and employed. The information which he was anxiously awaiting was whether the saline mixture so made affected the main quantity of the blood in such a manner as to decrease its coagulating power when it arrived at the uterus, whereby wholesome coagulation was interfered with. If this could be shown not to occur, then Dr. Hicks held that this method was all that could be desired. He spoke with some experience in the matter, having done nine cases, and the ease and comfort with which the operation could be performed made a striking contrast to the old methods. He had, at Dr. Pavy's suggestion, employed the phosphate of soda, it could be used in the proportion of one solution to three of blood, and, as in defibrinated blood, the whole preparation could take place outside the patient's room. But it seemed to him that it had not, at least, the disadvantage of this plan, for, however carefully strained the whipped blood might be, still it was impossible to prevent small particles passing through, which would favour embolisms. Again, he thought these two plans practically better than direct transfusion, *i.e.* by means of a tube. For, from what he had seen, he found that, as the person who generally gave blood, amongst the poorer classes especially, was the husband, when he was brought into the appalling, and to him new, sights which generally accompanied a flooding case, he turned faint, the blood stream ceased, and that meant coagulation, and a temporary, at least, arrest of the operation. These scenes are entirely avoided by the saline solutions or the whipped blood. The apparatus he had employed was made up by Krohne and Seseman, and took up very little space, being a syringe, small lancet on handle, probe, two-nozle thermometer, gravimeter, and bottle for the phosphate. There was one other remark which he would make on the paper, which was the most scientific written on the subject in England, and this was on the observation of the author that it was not so much *quantity* as quality which was wanted. Now, Dr. Hicks' experience showed that in the majority of severe floodings he had transfused there was exceedingly small quantity of blood in the veins of the arm. So much so, in some there was absolutely none, not even a bead of blood to indicate the position of the vessel, which was only found by careful observa-

tion. Hence a certain quantity of fluid is a distinct requirement as well as quality.

Dr. CHAMPNEYS said that he thought some caution was needed in applying the results of these experiments on animals to man. Some years ago he had the opportunity of witnessing some dozen cases of transfusion from the carotid of the lamb directly into one of the veins of the forearm of the human subject. In all the cases the phenomena were the same, and the experiments were the most interesting vivisections he had ever seen. After a short interval from the commencement of the transfusion began difficulty of breathing, with a feeling of oppression, then flushing, followed by sweating, which began on the forehead and face, then extended to the neck, upper part of the chest, and backs of the hands—the exposed parts of the body, in fact. Next day, and for a few days, hæmatinuria, and in all, or nearly all, cases urticaria. The cases were those of phthisis, more or less advanced, under the care of Dr. Fiedler, of Dresden, and were undertaken in consequence of some similar cases which had been recently published by Prof. Hasse, and in which the transfusion was said to have produced at least temporary benefit. But the point was that although in these Dresden cases no permanent good seemed to follow (though some of them appeared temporarily benefitted by the addition of some blood—of whatever kind), in none of them was there any serious, still less any fatal, result. This is directly opposed to what we should expect from Mr. Schäfer's experiments.

Dr. AVELING said two methods of performing transfusion had been proposed by Mr. Schäfer in his report to the Transfusion Committee, immediate venous and immediate arterial transfusion. The latter plan would probably never become popular, as its difficulties and disadvantages far outweighed its one advantage, viz. increased arterial pressure. Immediate venous transfusion Dr. Aveling believed to be the safer and more useful mode of operating, and the objections brought against his apparatus he believed to be groundless. He wished to call the attention of the Fellows to autotransfusion. By raising the legs and hips of the patient at an angle of forty-five degrees, and compressing the legs and abdomen, sufficient blood may be made to gravitate to the brain and heart to preserve life. This method may often be used successfully instead of transfusion. This position also has the effect of arresting uterine hæmorrhage.

Mr. SCHÄFER, replying to the remarks that had been made, desired it to be understood that very many of the results which he had obtained were only confirmatory of far more extensive researches which have been of late years conducted by German physiologists, and notably by Prof. L. Landois. He had considered it unnecessary to institute many experiments on the use

of defibrinated blood in transfusion, since it has been clearly recognised, since the results of Panum were published in 1863, that defibrinated blood may be substituted for the ordinary blood of a depleted animal with complete success. At the same time the method is not especially recommended, because, although effectual, it is not so simple as the transfusion of entire blood, and there is a risk of contamination with septic germs, and of the injection of minute clots. In conformity with this it is noticeable that its use is always succeeded by a febrile condition of the patient, and the same is the case even with entire blood when complicated pumping apparatus are used. The difficulty of employing direct transfusion, arising from the confused condition of the house and its occupants, is another question, and one not to be solved by physiological experiments upon animals. Like all other operations this one must be practised upon the dead body before being tried upon the living body, and if an ordinary practitioner has a doubt about the undertaking of the operation, he can, in many cases, call in the aid of a surgeon. The mixture of saline solutions (such as strong phosphate of soda solution) with the blood in order to retard its coagulation, as recommended by Dr. Hicks, may serve the purpose intended, but will inevitably alter and kill the blood corpuscles. Transfusion of lamb's blood has been abundantly shown always to produce most serious symptoms, at first of dyspnœa, and afterwards of renal disorder, if transfused in any amount. The beneficial effect which has been ascribed to it by Hasse is probably mythical, and it is certainly fatal if employed as a substitute for blood in cases of depletion. With Dr. Aveling's remark, with reference to the flowing away of the blood transfused centripetally by side branches, and, therefore, not reaching the aorta, Mr. Schäfer fully agreed, and stated that this point had been discussed in the paper read. The immediate beneficial effect was produced by the increase in the arterial pressure of the patient, and only secondarily by the new blood after this had traversed the capillaries. In direct venous transfusion it is certainly necessary to tie the cannula into the vein of the donor, otherwise there is either a loss of blood between it and the wall of the vein, or the latter is injured by the forcing of the tube into it. And the placing of a ligature round the vein is a most simple procedure. The question as to the advantages and disadvantages of the elastic pump was fully discussed in the paper.

INDEX.

PAGE

Abortion, case of, followed by septicæmia and fatal cardiac thrombosis (J. T. Musgrave) 81
Acoustic sign heard after the death of the fœtus (Robert Harvey) . 273
Address (*Annual*) *of the President*, Charles West, M.D., January 1st, 1879 5
Address (*Inaugural*) *of the new President*, William S. Playfair, M.D., February, 1879 29
ALDERSON (F. H.) *Remarks* in the discussion on the use of the forceps 158
Annual General Meeting, January 1st, 1879 1
Artery, femoral, of a dog: tracings with Fick's kymograph of the pressure in 342
—— pulmonary, fatal embolism of, nineteen days after delivery (Geo. Roper) 74
ATTHILL (Lombe) *Remarks* in the discussion on the use of the forceps 178
AVELING (James H.) *Remarks* on Dr. Hickinbotham's forceps for retained portions of placenta 22
—— —— in favour of digital dilatation of the os in preference to the hydrostatic bags 47
—— —— in objection to pivoted blades in midwifery forceps . 90
—— —— in the discussion of the Report on Transfusion . 346

BANTOCK (G. G.) *Remarks* on Dr. Priestley's case of spontaneous cure in extra-uterine fœtation 26
—— —— on Dr. Routh's case of extra-uterine pregnancy . 111
BARNES (Robert) tumour which had been protruded from the rectum during labour 28
—— see *Marshall's* midwifery forceps.
—— introductory paper to the discussion on the use of the forceps and its alternatives in lingering labour . . . 121
—— *Reply* in the discussion on the use of the forceps . . 238

PAGE

BARNES (Robert) *Remarks* on puncturing extra-uterine tumours in Douglas's pouch 26
—— —— in the discussion on Dr. J. Braithwaite's paper on digital dilatation of the os in labour, and on the use of his hydrostatic bags 46
—— —— on the proper form for pessaries 51
—— —— on the mechanism of the escape of injected perchloride of iron into the peritoneum 53
—— —— on the genesis of thrombosis by the ingestion of septic matter into the blood 82
—— —— on the benefits of operation from below in extra-uterine fœtation, &c. 111
BASSETT (John) *Remarks* in the discussion on the use of the forceps 192
BENNET (Henry) *Remarks* in the discussion on the use of the forceps 193
Blood, mixture of various fluids with, in transfusion . . . 316
—— see *Transfusion* of blood.
Bloxam, William, M.D., obituary notice of 10
Blundell's (the late Dr.) *library, purchase of, by the Society* . 2
Bones from an extra-uterine fœtation which had undergone spontaneous cure (W. O. Priestley) 24
BOULTON (Percy) extra-uterine fœtation 117
BRAITHWAITE (Jas.) on digital dilatation of the os in labour . 38
—— *Discussion* on ditto 46
BRUNTON (John) specimen of a rare form of fœtal monstrosity . 118
—— *Remarks* on the use of a cannulà like a double male catheter for injections of solution of iron into the uterus . . 54
—— —— relative to an acoustic sign heard after the death of fœtus 274
Buckingham (Chas. E., M.D.), of Boston, Mass., obituary notice of . 7
By-laws, notice of alterations of, at annual meeting, January, 1879 . 4

Cæsarean section on a dwarf, who died three days after of peritonitis (Braxton Hicks) 253
CARTER (C. H.) *Remarks* on a large solid tumour of the ovary . 287
CHAMBERS (Thomas) two ovaries, double ovarian congenital inguinal hernia 92
—— case of congenital inguino-ovarian hernia (double), operation, recovery 256
—— *Remarks* on the promising chance of success from gastrotomy in extra-uterine pregnancy 113
CHAMPNEYS (F. H.) *Remarks* in the discussion of the Report on Transfusion 346
Cholera in the newly born (John C. Lucas) 250

PAGE
Churchill, Fleetwood, M.D., of Dublin, obituary notice of . 12
Cleveland (W. F.) thick gelatinous cord, illustrating the necessity for more than ordinary care in tying to prevent hæmorrhage . 313
—— *Remarks* in the discussion on the use of the forceps . . 226
Cory (Robert) uterus from a case of severe uterine hæmorrhage and injection of perchloride of iron 51
—— *Remarks* on ditto 53
—— —— on the necessity of rest after labour or miscarriage to avoid symptoms of septicæmia 83
—— —— on pivoted forceps as meeting a real defect of the ordinary forceps 91
Cranny (John) *Remarks* in the discussion on the use of the forceps 194
Cullingworth (C. J.) on a uterus and ovaries in which each ovary had become transformed into a fibrous tumour of considerable size 276
—— —— *Discussion* on ditto 287
—— *Report* on his specimens of solid tumours of both ovaries, by J. Knowsley Thornton and Alban Doran . . . 314
—— *Remarks* on the conservative character of T. P. Teale and Lawson Tait's operations for repair of the female perinæum . 300
Cyst, see *Ovarian cysts.*
Cystoma (ovarian) see *Ovarian cystoma.*

Daly (F. H.) *Remarks* in the discussion on the use of the forceps . 227
Dilatation, digital, of the os uteri in labour (J. Braithwaite) . 38
Doran (Alban) tubal gestation and the effects of chronic retro-uterine hæmorrhage 169
—— deficient development of the uterus, atresia of the os externum, atrophy of the ovaries, insanity 253
—— *Remarks* on his post mortem of Dr. Routh's case of extra-uterine pregnancy, and the nature of the operations of gastrotomy and drainage suggested by it 110
—— —— on Dr. P. Boulton's specimen of extra-uterine fœtation . 118
—— —— on fibroma of the ovary 287
—— *Report* on C. J. Cullingworth's specimens of solid tumour of both ovaries 314
Duncan (J. Matthews) two specimens of pyometra, one caused by atresia of the cervix, and the second the cervix widely open . 54
—— on expression of the cord 302
—— —— *Discussion* on ditto 308
—— *Remarks* on Lawson Tait's operation for repair of the female perinæum, and on the retentive power of the sphincter . 300

PAGE

Ectropion of the os uteri, case of bilateral laceration with (A. L. Galabin) 312

Edis (A. W) *Remarks* on the use of digital dilatation of the os, and the use of Barnes's hydrostatic bags 47

—— —— on the danger of the long retention of pessaries . 50

—— —— on the necessity of rest and quiet in cases of septicæmia to avoid thrombosis 84

—— —— in the discussion on the use of the forceps . . 171

—— —— on Lawson Tait's apparatus for dilating the uterine canal by continuous elastic pressure 292

—— —— on Lawson Tait's operation for repair of the female perinæum 299

Election of New Fellows 1, 22, 87, 161, 249, 311

Embolism, fatal, of right heart and pulmonary artery, nineteen days after delivery (Geo. Roper) 74

Fallopian tubes, both attached to a unilocular ovarian cyst (J. K. Thornton) 119

—— gestation in, and effects of chronic retro-uterine hæmorrhage (A. Doran) 169

Fellows, see *Lists, Election.*

Fibroma of both ovaries, case of (C. J. Cullingworth) . . 276

Fœtation, see *Pregnancy.*

—— extra-uterine, bones from one which had undergone spontaneous cure (W. O. Priestley) 24

—— —— shown by P. Boulton 117

—— —— see *Pregnancy* (extra-uterine).

Fœtus, notes on a (H. S. Wilson) 58

—— death of, an acoustic sign heard after (Rt. Harvey) . . 273

Forceps, *Discussion* on the use of, and of its alternatives in lingering labour 121

May 7th.

Barnes, R., M.D., Introductory Paper . . . 121
Playfair, W. S., M.D., President 141
Kidd, Geo., M.D. (Dublin) . 141
Thorburn, John, M.D. (Manchester) 146
Stephenson, Wm., M.D. (Aberdeen) . . . 150
Newman, Wm., M.D. (Stamford) 153
Malins, Edward, M.D. (Birmingham) . . . 155
Alderson, F. H. . . . 158
Worship, J. L. (Sevenoaks) . 159

June 4th.

Edis, A. W., M.D. . . 171
Atthill, Lombe, M.D. (Dublin) 178
McClintock, A. H., M.D. (Dublin) 185
Bassett, John, M.D. (Birmingham) . . . 192
Bennet, Henry, M.D. . . 193
Cranny, John J., M.D. (Dublin) 194
Savage, Henry, M.D. . . 196

PAGE

Forceps, *Discussion* on the use of, and of its alternatives in lingering labour (*continued*)—

July 2nd.

Roper, George, M.D. . . 201
Hicks, Braxton, M.D. . . 218
Cleveland, W. F., M.D. . 226
Daly, F. H., M.D. . . 227
Hewitt, Graily, M.D. . . 229
Swayne, J. G., M.D. (Bristol) 233
Playfair, W. S., M.D., President 235
Barnes, Rt., M.D., reply . 238

—— midwifery, each blade rotating on its axis by means of a pivot joint, designed by Dr. Marshall 90
—— —— with simple method of increasing its compressive power (J. Thorburn) 162
—— for removal of an ovum or retained portion of placenta from the uterus (James Hickinbotham) 22

Galabin (A. L.) ovary of a healthy woman, murdered by a stab which divided the femoral artery 23
—— a Greenhalgh's pessary removed with difficulty from the vagina 49
—— origin of ovarian cystoma from Graafian follicles, and presence of limpid fluid in true ovarian cysts 288
—— section from anterior lip of the cervix uteri from a case of deep bilateral laceration with ectropion 312
—— microscopic section of a portion of menstrual decidua passed on the first day of menstruation 312
—— *Remarks* on Dr. Routh's case of extra-uterine pregnancy, and the danger attending treatment by simple puncture, as illustrated by the statistics of Dr. Parry 112
—— —— on the microscopical characters of Dr. T. Chambers's case of congenital inguino-ovarian hernia 271
—— *Report* on Dr. T. Chambers's case of congenital inguino-ovarian hernia 269
Gervis (Henry) *Remarks* on septicæmia as a cause of thrombosis . 83
Godson (Clement) polypus recently removed from a woman, æt. 60 . 57
—— double monster exhibited in July, 1878, since dissected . 88
—— set of pocket instruments contained within an ordinary cylindrical speculum 90
—— *Remarks* on the shape of pessaries . . . 50
—— —— on Dr. Routh's case of extra-uterine pregnancy, and the danger of, from fæcal gases in, tapping from the rectum . 111
Graafian follicles, ovarian cystoma from (A. L. Galabin) . . 288

Hæmorrhage, chronic retro-uterine, effects of (A. Doran) . . 169
—— post-partum, apparatus for injecting the uterus in (J. B. Potter) 29

PAGE

Hæmorrhage, severe uterine, and injection of perchloride of iron, uterus from a case of (R. Cory) 51
Harvey (Robert) note on an acoustic sign heard after the death of the fœtus 273
Heart, right side of, fatal embolism of, nineteen days after delivery (Geo. Roper) 74
Herman (G. E.) see *Wilson* (*H. S.*).
Hernia, double ovarian congenital inguinal (T. Chambers) . . 92
—— double congenital inguino-ovarian, operation, recovery (T. Chambers) 256
—— —— *Report* on ditto, by John Williams and A. L. Galabin . 269
Hewitt (Graily) *Remarks* in the discussion on the use of the forceps 229
Hickinbotham (James) forceps for removal of an ovum or retained portion of placenta from the uterus 22
Hicks (J. Braxton) photograph of a dwarf on whom Cæsarean section had been performed, and who died three days after of peritonitis 253
—— (for F. Ogston, junr.) unilateral uterus and kidney (solitary) with two ureters 57
—— *Remarks* on pessaries 50
—— —— on the effect of the perchloride of iron in contracting the os and cervix 53
—— —— on monsters supposed to be buddings from the other fœtus in early states 73
—— —— on the septicæmic origin of cardiac thrombosis . . 83
—— —— in the discussion on the use of the forceps . 218
—— —— on the best mode of action in expression of the cord . 308
—— —— in the discussion of the Report on Transfusion . 345
Hodder (Edw. M., M.D.) of Toronto, obituary notice of . . 7
Hysterectomy, uterus with oviducts and ovaries removed during the operation of (Heywood Smith) 313

Insanity, in a case of deficient development of the uterus (A. Doran) 253
Instruments, pocket, set of, contained within an ordinary cylindrical speculum (C. Godson) 90
Iron, perchloride of, injection, in a case of severe uterine hæmorrhage (R. Cory) 51

Kidd (George) *Remarks* in the discussion on the use of the forceps 141
Kidney, solitary, with two ureters, in a case of unilateral uterus (F. Ogston, per Braxton Hicks) 57
Koch, Edwin L., M.D., of Colombo, Ceylon, obituary notice of . 11

Labour: see *Parturition.*
Library of the late Dr. Blundell, purchase of, by the Society . 2

PAGE

List of officers elected for 1879 18
—— *ditto for* 1880 v
—— *of Honorary Fellows* xi
—— *of Corresponding Fellows* xiii
—— *of Ordinary Fellows* xiv
—— *of deceased Fellows*, 1878 [with obituary notices, which see] 6—16
—— *of past Presidents* vi
—— *of Referees of Papers* vii
—— *of Standing Committees* . . . viii, ix
—— *of Honorary Local Secretaries* x
Lucas (John C.) cholera in the newly-born . . . 250

McClintock (A. H.) *Remarks* in the discussion on the use of the forceps 185
Malins (Edward) *Remarks* in the discussion on the use of the forceps 155
Marshall (——) new midwifery forceps designed by; each blade rotating on its axis by means of a pivot joint, shown by Dr. Barnes 90
—— —— *Remark* on ditto 90
Meeting, Annual General, January 1st, 1879 . . . 1
Menstrual decidua, passed on the first day of menstruation; microscopic section of (A. L. Galabin) . . . 312
Midwifery, question of the present state of the curriculum in the medical schools relative to (W. S. Playfair) . . 32
Midwives, notice of the prospects of legislation relative to . 5, 6
Milk, effects of, when injected into the vascular system of animals . 320
—— table of experiments of expulsion of, without previous depletion, and of infusion with previous depletion . . . 338
Monster, the delivery of a (R. H. A. Schofield) . . 71
—— double, exhibited in July, 1878, since dissected (C. Godson) . 88
Monstrosity, rare form of fœtal (John Brunton) . . 118
Murray (G. C. P.) *Remarks* in favour of rotating blades in the forceps 91
Musgrave (J. T.) case of abortion followed by septicæmia and fatal cardiac thrombosis 81
—— —— *Discussion* on ditto 82

Newman (William) *Remarks* in the discussion on the use of the forceps 153

Obituary notices of deceased Fellows . . . . 7—14

Buckingham, Chas. E., M.D., of Boston, U.S. . . . 7
Hodder, Edw. M., M.D., of Toronto 7
Shearman, Edw. Jas., M.D., of Rotherham 8
Churchill, Fleetwood, M.D., of Dublin 12

PAGE

Obituary notices of deceased Fellows, continued—

Peaslee, Edmund Randolph, M.D., of New York . . 14
Steele, Arthur Browne, M.D., of Liverpool . . . 10
Bloxam, William, M.D. . 10
Koch, Edwin L., M.D., of Colombo 11

Ogston (F.) *junr.* unilateral uterus and kidney (solitary) with two ureters 57
Ovarian cyst, unilocular, involving both ovaries and with both Fallopian tubes attached (J. K. Thornton) . . . 119
Ovarian cystoma from Graafian follicles, and limpid fluid in true ovarian cysts (A. L. Galabin) 288
Ovaries, two, from case of double ovarian inguinal hernia (T. Chambers) 92
—— case in which each ovary had become transformed into a fibrous tumour of considerable size (C. J. Cullingworth) . . 276
—— atrophy of the, in a case of deficient development of the uterus (A. Doran) 253
Ovary of a healthy woman murdered by a stab which divided the femoral artery (A. L. Galabin) 23
Ovum, possible extent of interference with, without abortion occurring (W. S. Playfair) 290

Parturition, on digital dilatation of the os in (J. Braithwaite) . 38
—— fatal embolism of right heart and pulmonary artery (Geo. Roper) 74
—— protrusion of tumour from rectum during (R. Barnes) . 28
—— premature, and death from obstruction of intestine, in a case of uterine outgrowth removed during pregnancy (J. K. Thornton) 163
Peaslee, Edmund Randolph, M.D., of New York, obituary notice of 14
Perinæum, new methods of operation for repair of female (Lawson Tait) 292
Peritonitis, death from, of a dwarf, three days after Cæsarean section (Braxton Hicks) 253
Pessary, Greenhalgh's, removed with difficulty from the vagina (A. L. Galabin) 49
—— metallic stem, removed from a patient who had worn it for five years and a half (W. S. Playfair) . . . 50
Playfair (W. S.) *Inaugural address as President*, February, 1879 . 29
—— a metallic-stem pessary, with external support removed from a patient who had worn it for five years and a half . . 50
—— —— *Remarks* on ditto 50
—— specimen consisting of large pieces of uterine decidua illustrating the extent to which the ovum may be interfered with without abortion occurring 290
—— *Remarks* in the discussion of the Report on Transfusion . 344

PAGE

PLAYFAIR (W. S.), *Remarks* against indiscriminate digital dilatation of the os in labour 46
—— —— on the non-necessity of pivot blades for midwifery forceps 91
—— —— on Dr. Routh's paper on extra-uterine pregnancy . 110
—— —— in the discussion on the use of the forceps . 141, 235
Polypus recently removed from a woman, æt. 60 (C. Godson) . 57
POTTER (J. B.) pocket case containing apparatus for injecting the uterus in post-partum hæmorrhage 29
Pregnancy, uterine outgrowth removed during, premature labour, death from obstruction of intestine (J. K. Thornton) . . 163
—— extra-uterine, case of, with notices of other cases (C. H. F. Routh) 93
—— —— appendix of cases . . . 106—10
—— see *Fœtation.*
—— in Fallopian tubes, and effects of chronic retro-uterine hæmorrhage (A. Doran) 169
PRIESTLEY (W. Overend) bones from an extra-uterine fœtation which had undergone spontaneous cure 24
—— —— *Discussion* on ditto 26
—— *Remarks* on difficulties in the use of Barnes' dilators . . 47
Pyometra, two specimens, one from atresia of the cervix, the second the cervix widely open (Matthews Duncan) . . 54

RASCH (A.) *Remarks* on operations for repair of the female perinæum 299
Receipts and Expenditure of the Society . . . 3
Rectum, protrusion of tumour from, during labour (R. Barnes) . 28
Report (audited) of the Treasurer for 1878 . . . 2, 3
Report of the Hon. Librarian for 1878 . . . 2, 4
ROGERS (W. R.) *Remarks* on Dr. Priestley's case of spontaneous cure in extra-uterine fœtation 27
—— —— on Dr. Routh's case of extra-uterine pregnancy, and in favour of gastrotomy with antiseptic treatment . . 112
—— —— on Lawson Tait's operation for repair of the female perinæum 300
ROPER (George) fatal embolism of the right heart and pulmonary artery nineteen days after delivery . . . 74
—— —— *Discussion* on ditto 82
—— *Reply* in the discussion on his case of fatal embolism after delivery 85
—— *Remarks* in the discussion on the use of the forceps . . 201
—— —— in reference to his paper in Vol. XVII on prolapse of the funis 308

PAGE

Routh (C. H. F.) case of extra-uterine pregnancy, with notices of other cases 93
—— —— *Discussion* on ditto 110
—— *Reply* in the discussion on his paper on extra-uterine pregnancy 113
—— *Remarks* in favour of the use of Dr. Marshall's pivot-jointed forceps 92
—— *Remarks* on Dr. T. Chambers's case of congenital inguino-ovarian hernia 271

Savage (Henry) *Remarks* in the discussion on the use of the forceps 196
Schäfer (E. A.) *Report* of experimental inquiry instituted to determine with what fluids and by what methods the operation of blood transfusion may best be performed, and to ascertain the effects, immediate or remote, which result from the operation in animals 316
—— see *Transfusion*.
—— *Reply* in the discussion of the Report on Transfusion . 346
Schofield (R. H. A.) the delivery of a monster . . 71
Septicæmia and fatal cardiac thrombosis following a case of abortion (J. T. Musgrave) 81
Shearman, Edw. Jas., M.D., of Rotherham, obituary notice of . 8
Smith (Heywood) uterus, with oviducts and ovaries, removed during the operation of hysterectomy (exhibited) . . . 313
—— *Remarks* on securing the uterus to the abdominal walls in Matthews Duncan's case of procidentia uteri . . 302
Speculum, ordinary cylindrical, set of pocket instruments contained within (C. Godson) 90
Steele, Arthur Browne, M.D., of Liverpool, obituary notice of . 10
Stephenson (Wm.) *Remarks* in the discussion on the use of the forceps 150
Swayne (J. G.) *Remarks* in the discussion on the use of the forceps 233

Tait (Lawson) apparatus for dilating the uterine canal by continuous elastic pressure 291
—— on new methods of operation for repair of the female perinæum 292
—— —— *Discussion* on ditto 299
—— *Remarks* on Mr. Cullingworth's case of fibroma (fibroid cancer?) of both ovaries 287
Thorburn (John) midwifery forceps, with simple method of increasing its compressive power 162
—— *Remarks* in the discussion on the use of the forceps . . 146
Thornton (J. Knowsley) unilocular cyst involving both ovaries, and with both Fallopian tubes attached . . . 119

PAGE

THORNTON (J. Knowsley) uterine outgrowth removed during pregnancy, premature labour, death from obstruction of intestine . 163

—— *Report* on C. J. Cullingworth's specimen of solid tumour of both ovaries 314

Thrombosis, fatal cardiac, and septicæmia following a case of abortion (J. T. Musgrave) 81

TRANSFUSION of BLOOD, *Report* of experimental inquiry instituted to determine with what fluids, and by what methods, the operation may best be performed, and to ascertain the effects, immediate or remote, of the operation in animals . . . 316

Mixture of various fluids with human blood . . . 316
Effects of milk when injected into the vascular system of animals 320
Examination of the different methods of transfusion . . 322
Experimental evidence in favour of direct centripetal arterial transfusion 326
Other methods of transfusion 330
Conclusions arrived at 332
Appendix A.—Directions and precautions necessary to be observed in direct transfusion through a simple tube, apparatus required, &c. (Direct venous and direct centripetal arterial transfusion) 334–7
Appendix B.—Tables of experiments: milk expulsion without previous depletion, milk infusion with previous depletion, and blood transfusion with previous depletion 338–41
Appendix C.—Tracings with Fick's kymograph of the pressure in the femoral artery of a dog 342
Appendix D.—List of works on transfusion consulted . 343

—— *Discussion* on the report. . . . .

Playfair, W. S., M.D. . . 344 | Aveling, J. H., M.D. . . 346
Hicks, J. Braxton, M.D. . 345 | Schäfer, E. A. (reply) . . 346
Champneys, F. H., M.B. . 346

—— list of works on, consulted for report . . . 343

Tubal gestation, see *Fallopian tubes.*

Tumour, &c., protruded from rectum during labour (R. Barnes) . 28

—— fibrous, case in which each ovary had become transformed into a large (C. J. Cullingworth) 276

Umbilical cord, thick gelatinous, illustrating necessity for more than ordinary care in tying to prevent hæmorrhage (W. F. Cleveland) 313

Ureters, two, to a solitary kidney, in a case of unilateral uterus (F. Ogston, *per* Braxton Hicks) 57

Uterine canal, apparatus for dilating, by continuous elastic pressure (L. Tait) 291

Uterine decidua, large pieces, showing possible extent of interference with the ovum without abortion occurring (W. S. Playfair) . 290

Uterine outgrowth removed during pregnancy, premature labour, death from obstruction of intestine (J. K. Thornton) . . 163

PAGE

Uterus, with oviducts and ovaries, removed during hysterectomy (Heywood Smith) 313
—— deficient development of, atresia of the os externum, atrophy of the ovaries, insanity (A. Doran) 253
—— unilateral, and solitary kidney with two ureters (F. Ogston, *per* Braxton Hicks) 57
—— apparatus for injecting the, in post-partum hæmorrhage (J. B. Potter) 29
—— cervix uteri, two cases, one of atresia, the other the cervix widely open, specimens of pyometra from (Matthews Duncan) . 54
—— —— microscopic section from the anterior lip of the, from a case of deep bilateral laceration, with ectropion (A. L. Galabin) 312
—— os uteri, atresia of, and atrophy of the ovaries (A. Doran) . 253
—— —— on digital dilatation of, in parturition (J. Braithwaite) . 38

Vagina, see *Pessary*, removal of, from.

West (Charles) *Annual address as President*, January 1st, 1879 . 5
Wilson (H. S.) *per Dr. Herman*, notes on a fœtus . . 58
Williams (John) *Remarks* on a case of embolism after post-partum cellulitis, &c. 84
—— —— on pivoted forceps not meeting the want of a better fitting curvature of the blade 91
—— —— on the valuable character of Dr. T. Chambers's case of congenital inguino-ovarian hernia 270
—— —— on an acoustic sign heard after death of fœtus . . 274
—— *Report* on Dr. T. Chambers's case of congenital inguino-ovarian hernia 269
Wiltshire (Alfred) *Remarks* on Dr. P. Boulton's specimen of extra-uterine fœtation 117
—— —— on the importance of Dr. T. Chambers' case of congenital inguino-ovarian hernia 270
—— —— on Mr. Cullingworth's case of fibroma of both ovaries (malignant?) 287
—— —— on a mode of restoring the power of the sphincter, in laceration of the female perinæum . . . 301
Worship (J. L.) *Remarks* in the discussion on the use of forceps . 159

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